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## A SECOND SERIES OF CATARACT OPERATIONS (ONE HUNDRED AND FIFTY-EIGHT).*

By Robert L. Randolph, M. D.

Five years ago I reported in the Bulletin of the Johns Hopkins Hospital a series of fifty consecutive cataract operations. Of these fifty operations six were performed in a hospital. With the exception of eighteen, the remaining twenty-six were among the poorer classes of a country population in Virginia and in a mining region in the western part of Maryland. This series then is chiefly interesting from the rather unusual conditions which surrounded most of the patients. For instance, the first case reported (Series I, Case 1) was operated on in a log cabin near Warrenton, Va., and the old man was nursed by his daughter, who saw him only at meal times and at night (she being in service), and as a consequence he was exposed not infrequently to risks during her absence. He went through the same experience a year later with his other eye and, as in the first instance, obtained excellent vision. Case 8 (in the same series) had been blind for three years and lived at a remote point on a plantation in Virginia, and he was nursed by his wife. His cabin was too dark for the operation and I put him on a cot and operated out in the yard. He was very timid and jumped when the iridectomy was performed, causing some loss of vitreous. He counted my fingers after the operation and I assisted him upstairs to a room next to the roof, as the only other room in the house opened out into the yard. He remained there for a week, and at the end of that time was allowed to come downstairs. He subsequently obtained perfect vision. Case 39 (Series I) was operated on in a cabin full of negro children, and he was looked after by his daughter. The result was most satisfactory. In this series of fifty, two failed to recover sight, and as the circumstances peculiar to these were rather unusual and as such might explain the failure, I shall relate the histories.

Case 49, woman 78 years old, had been troubled many years with dacryocystitis, more marked in the left eye than in the right. She had been blind from cataract for three years. Refused treatment for the lachrymal trouble, saying she was too weak and old to stand the pain incident upon the probing. She was made acquainted with the additional risk of a cataract operation performed on an eye where there was disease of the lachrymal sac. She was willing, however, to run the risk of infection from this source, so I operated on the least affected eye. The result was a perfect success. A year later she presented herself for operation upon the second eye. The operation was smooth and she counted fingers with ease immediately afterward. I left the city that evening, not expecting to see her again for two weeks. She was entrusted to the care of the physician who assisted me in the operation. It is well to state here that she belonged to a most ignorant class of white

* Read at the annual meeting of the American Ophthalmological Society, Washington, D. C., May, 1897.

people, and though nearly eighty years of age, was accustomed to going barefooted in warm weather. The first time I operated she had shown herself unmanageable and walked around the house three days after the operation. That was in the winter time. The second operation was in June last, and when I saw the patient two weeks after the operation her physician told me that she got up out of bed the next day, tore the plaster off her good eye and came downstairs and sat in the yard and smoked her pipe. The second day after the operation she walked nearly a mile barefooted to see her daughter. Whatever were the causes which produced it, when I saw her the second time the eye was lost. It is impossible, then, to say whether to attribute the loss of the eye to infection from the mucocele or to carelessness and exposure after the operation. Before each operation the contents of the lachrymal sac were pressed out, and, as far as possible, the conjunctival sac was rendered aseptic by irrigating it with a solution of corrosive sublimate $\frac{1}{4000}$.

The second case (Case No. 47) is that of a man sixty-one years old. He had been subject for many years to rheumatism, and had suffered also for a long time with varicose veins on both legs, and as a result of the latter condition his right leg was covered with an eczema. The blood-vessels at his wrists and temples were tortuous and hard. Left eye, total cataract and good field of vision for light. The operation was absolutely smooth, and after the delivery of the lens the patient could see my face and count fingers readily. I removed the speculum and closed the eye, putting on the usual bandage. Ten minutes later, and just before I was about to leave the house, he complained of violent pain in the eye. I suspected hemorrhage and immediately removed the bandage to investigate. I found the latter soaked with blood. The mass of blood and protruding vitreous were cleaned away and strong pressure applied. On returning six hours later it was found that the oozing had continued and he was still suffering pain. The lids were opened and a clot of vitreous was discovered between the edges of the wound. This was removed, and after first irrigating the conjunctival sac with a very weak sublimate solution, a pressure bandage was applied. At my visit the next day I found the bandage quite moist and there was every evidence that the oozing was persisting. I cleaned out the sac again and renewed the bandage. On the afternoon of the second day I saw him again and there were still signs of hemorrhage. The same course of treatment was pursued and on the third day I found the bandage clean. Of course he was told that vision was irrevocably gone from the onset of the hemorrhage. In nearly all cases of this class the cornea sloughs, but this termination I fortunately escaped. Hemorrhage after cataract extraction is rare. Dr. Knapp reports in a recent number of the Archives of Ophthalmology his only case. In my own case I can account for the hemorrhage only by the condition of the blood-vessels throughout his body. No doubt the vessels of the retina were tortuous and their walls atheromatous, and when the lens was removed and intraocular tension thereby lowered, the blood-vessel walls could not withstand the pressure from the increased volume of blood pouring into them; so they ruptured. The whole condition of the patient pointed to a diseased state of the circulatory apparatus. It is impossible to guard against such a termination, though I should regard it as a contra-indication for operation upon the other eye, for no matter how smooth the operation might be, the chances are that hemorrhage would follow the delivery of the lens.

Out of this series, then, all obtained useful vision but Cases 47 and 49.

Since the publication of this series I have operated upon 158* cases and the tabular statement is herewith appended. Two of the cases are especially interesting as being instances of maniacal excitement, possibly due to the use of atropine after the operation. The first case was a colored man, operated upon in the poorhouse of Mineral Co., W. Va. He was seventy-five years old and had been practically helpless from cataract for a year. Atropine was instilled immediately after the operation. The next morning the physician, Dr. C. S. Hoffman of Keyser, W. Va., was sent for and he wrote me that the patient had gotten up during the night, torn the bandage off, secured a razor from one of the inmates of the room and had gashed his throat in several places and was bleeding profusely when found. In the excitement which followed the eye was forgotten and it was some time before the bandage was replaced. He was quieted, and seven days later, that is, on the eighth day after the operation, he disappeared from the poorhouse and two months afterward was seen by Dr. Hoffman, in Piedmont, W. Va., 20 miles distant, where he was chopping wood and apparently getting along with absolute comfort. It might be added that he was entirely blind in the other eye.

The other case was also a very old colored man (88 years old). The operation was simple extraction, and atropine was instilled as usual at the operation. Before daybreak of the next day he was a raving maniac and had to be tied down to his bed. His bandage was torn off several times and he was incessantly tossing his head from side to side, until that too had to be secured so as to be as far as possible immovable. I did not dare look at the eye, as I supposed that it was lost. He did not recover his reason for a week, and all that was done was to apply hot moist compresses to the eye. When he became rational and I was enabled to get a satisfactory view of the eye I found a rather small pupil, a slight prolapse, but very little pericorneal congestion. On the tenth day he seemed to be completely himself again, and as the eye evidently needed a mydriatic, one drop of a solution of atropine (4 gr. —$\frac{3}{1}$i) was instilled and the nurse was instructed to repeat the dose at bedtime. When I returned to the hospital the next day I found that during the night he had jumped out of the window—20 feet from the ground—scaled a high iron-spiked fence and was making off when overtaken by an orderly. Notwithstanding all this exposure he obtained $\frac{20}{70}$ vision. Nothing was done for the prolapse, which flattened out entirely.

Another interesting case was where the anterior chamber

*At the meeting of the Amer. Oph. Soc. only 147 cases were reported in my second series. Since the meeting I have operated upon eleven cases.

remained open for seventeen days. I have seen explanations for this phenomenon, but none seem adequate. The operation was the combined one, and the wound had united about half way up on one side and the rest of the incision remained open. More than once during these seventeen days a spatula was passed beneath the corneal flap, and it was easily seen that no union had taken place. The operation so far as could be seen appeared to have been normal, that is to say there was not the slightest hitch in any of the steps. Atropine and compress bandage were employed, and two weeks after he left the hospital his vision was $\frac{20}{200}$. Eight months later he returned to the hospital with serious iritis, and since then vision has been lost, though he still has light perception.

Iridectomy was performed in 102 cases and simple extraction in 42 cases. Soft cataract was operated upon by needling in three cases.

In thirty-one cases the vision was not tested. Three of these cases were in very young children and any subjective test would have been very unreliable. The remaining twenty-eight were ones which I had operated upon at a distance and most of whom I saw only once after the operation. A number of cataract glasses were sent to them from which to make a selection, and in this way I learned to what extent the operation had benefited the patient. It will be seen from the table that the operation and healing process were uncomplicated in all of these cases and all obtained useful vision.

The failures were as follows: *Case* 54. The operation was smooth, and when the bandage was removed she could see large objects in the room. This was on the seventh day. Two days later iritis of a very sluggish character developed, and in spite of all treatment ended in closed pupil and light perception. Dr. H. Harlan of this city operated on the other eye and obtained good vision, but he told me that the operation was also followed by iritis.

*Case* 72 had an exactly similar history.

*Case* 95 was one which I had treated for several months for dacryocystitis. Her left eye had been operated upon by a New York oculist two years previously, and the cause of the failure in the case of that eye was no doubt the same as in the case of the eye upon which I operated, for both eyes were affected with dacryocystitis. When first seen she had a fistulous opening which had been discharging for several months. Before operation she was under treatment for at least five months, during which time the fistula had closed and the epiphora had almost disappeared. She understood the danger, but being totally blind in the other eye, wanted the operation performed. The cornea sloughed within a week after the operation.

*Case* 137 was that of a man 81 years old. On opening the eye on the third day there was a very offensive discharge on the bandage and between the lids, and beginning clouding at the edge of the corneal wound. Vigorous local and constitutional treatment, however, prevented the corneal trouble from extending and he was left with a clear cornea and closed pupil. I think that I could have converted this failure into a success (as in Case 190) by iridotomy, but a few days before the proposed operation he was attacked with pneumonia and died on the eighth day.

The last case was that of an old colored man (Case 128) and the history here was similar to Cases 54 and 72.

In one case (male, both eyes, 67 and 68), the patient had good light perception, but after the extraction of the cataracts it was observed that while he could move about somewhat better, his sight continued very poor, and this was explained by the existence of optic nerve atrophy in both eyes.

In Cases 53 and 207 a cataractous lens (congenital) had undergone calcification and presented a bright white mass in the pupil. The operation was simply for cosmetic purposes.

As to prolapse of the iris. In the 42 cases of simple extraction there were five prolapses. In three of these cases nothing was done, though in Case 181 the prolapse looked as though it would extend through the entire wound. Under a compress bandage, however, and atropine the hernia smoothed over and she has now vision $\frac{20}{40}$. In Case 182 the prolapse got worse from day to day till it nearly filled the wound, and it continued bulging more and more. There was no hernia on the second day when the eye was inspected, but he had a little gush of tears that night followed by pain, and a small hernia was visible the next day. On the eighth day, fearing that the eyeball would be permanently disfigured (to say nothing of loss of sight), the protruding iris was cut off. There is now not the slightest ectasia of the cornea so far as can be seen, and the patient has $\frac{20}{30}$ vision.

In these last two cases lachrymation and photophobia were present to a marked extent and some little pain was felt at the time when the prolapse occurred, but after this pain was conspicuously absent. So far as could be seen there were no evidences of infection in any of the cases of prolapse. When I say evidences I mean cloudy media and exudates. I think that the absence of infection in these and similar cases is to be attributed to the fact that the wound is filled with the protruded iris and probably there is no way for the bacteria to make entrance into the anterior chamber. The profuse lachrymation which is usually present must be regarded as a more or less protection from a mechanical point of view, *i. e.* to some extent in washing away bacteria. And I think that an examination of the statistics of simple extraction will disclose the fact that the failures are as a rule not associated with prolapse.

In commenting upon the visual results it will probably strike many as singular that $\frac{20}{20}$ was obtained only four times, but this may be explained by the fact that discission was performed only ten times and that in quite a number of cases (31) I made no test of the vision.

In all of the operations the incision was made well within the limbus of the cornea and still a little further in at the top of the incision. The latter includes usually something less than half the circumference of the cornea.

The instruments with the exception of the knife are boiled. The knife is allowed to remain in Squibb's absolute alcohol for 20 minutes. The eyebrows and that side of the face are covered with a cloth saturated with a solution of sublimate 1:1000. Both the cocaine and atropine solutions are boiled in test tubes and only used once. Small pledgets of cotton secured by sponge holders and boiled are used for removing debris from the field of operation, such for instance

as strings of mucus and small clots of blood. The unoperated eye is closed till the second day and a small pad of sterilized absorbent cotton is placed over the operated eye and over this a four-tail bandage. The eye is inspected on the second day, and earlier if there be unusual pain. The room is darkened, but is not uncomfortably dark. The patient is allowed to get up on the second day, and the bandage is removed on the seventh day, though there was a time when I removed it earlier. The following is the arrangement of the visual results:

| | |
|---|---|
| 20/20 | 4 |
| 20/30 | 11 |
| 20/40 | 35 |
| 20/70 | 36 |
| 20/100 | 26 |
| 20/200 | 6 |
| Vision not tested | 31 |
| Atrophy of the optic nerve | 2 |
| Cosmetic purposes | 2 |
| Failures | 5 |
| | 158 |
| Successes in the first series | 48 |
| Failures in the first series | 2 |
| Total number of cases operated upon | 208 |

| No. | Sex. | Age. | Health. | Cataract. | Operation. | Healing process. | Duration of treatment. | Primary Vision. |
|---|---|---|---|---|---|---|---|---|
| 51 | Male. | 77. | Good. | Hard. R. E. | Iridectomy, smooth. | Uncomplicated. | 2 weeks. | 20/70 |
| 52 | Male. | 75. | Good. | " " | " " | Mild iritis. | 2 " | 20/100 |
| 53 | Male. | 36. | Good. | Calcareous. R. E. | " " | Uncomplicated. | 2 " | Light perception. |
| 54 | Female. | 50. | Good. | Hard. L. E. | " " | Iritis. | 6 " | " " |
| 55 | Male. | 71. | Good. | " " | " " | Uncomplicated. | 2 " | 20/30 |
| 56 | Female. | 68. | Bad. | " " | Escape vitreous. | Iritis. | 5 " | 20/70 |
| 57 | Female. | 66. | Good. | " " | Iridectomy, smooth. | Uncomplicated. | 2 " | Not tested. |
| 58 | Female. | 72. | Good. | " R. E. | " " | " | 2 " | 20/26 |
| 59 | Female. | 65. | Bad. | " L. E. | " " | Iritis. | 4 " | 20/100 |
| 60 | Male. | 70. | Good. | " R. E. | " " | Uncomplicated. | 2 " | 20/30 |
| 61 | Male. | 50. | Good. | " " | " " | " | 2 " | 20/40 |
| 62 | Male. | 50. | Good. | " L. E. | " " | " | 2 " | 20/40 |
| 63 | Female. | 55. | Good. | " R. E. | " " | " | 2 " | 20/100 |
| 64 | Female. | 60. | Bad. | " " | " " | " | 2 " | 24/40 |
| 65 | Male. | 55. | Good. | " L. E. | " " | Mild iritis. | 5 " | 20/70 |
| 66 | Female. | 62. | Good. | " " | " " | Uncomplicated. | 2 " | Not tested. |
| 67 | Male. | 75. | Bad. | " " | Simple Ext. | " | 2 " | Atrophy. |
| 68 | Male. | 75. | Bad. | " R. E. | Iridectomy. | " | 2 " | O. Nerve. |
| 69 | Female. | 60. | Good. | " " | " | " | 2 " | 20/40 |
| 70 | Female. | 60. | Good. | " L. E. | " | " | 2 " | 20/70 |
| 71 | Female. | 66. | Good. | " R. E. | " | Iritis. | 3 " | 20/100 |
| 72 | Male. | 80. | Good. | " L. E. | " | Irido-cyclitis. | 8 " | Light perception. |
| 73 | Male. | 63. | Good. | " " | " | Uncomplicated. | 2 " | 20/30 |
| 74 | Male. | 66. | Good. | " R. E. | " | " | 2 " | 20/20 |
| 75 | Female. | 71. | Good. | " L. E. | " | " | 2 " | 20/70 |
| 76 | Female. | 50. | Good. | " R. E. | " | " | 2 " | Not tested. |
| 77 | Female. | 61. | Good. | " L. E. | " | Mild iritis. | 3 " | 20/40 |
| 78 | Female. | 66. | Good. | " R. E. | " | Uncomplicated. | 2 " | 20/40 |
| 79 | Female. | 54. | Good. | " L. E. | " | " | 2 " | 20/40 |
| 80 | Male. | 75. | Good. | " R. E. | " | " | 2 " | 20/70 |
| 81 | Male. | 71. | Good. | " " | " | " | 2 " | Not tested. |
| 82 | Female. | 63. | Good. | " L. E. | " | Vitreous lost. Iritis. | 4 " | 20/100 |
| 83 | Female. | 50. | Good. | " " | " | Uncomplicated. | 2 " | 20/70 |
| 84 | Female. | 51. | Good. | " R. E. | " | " | 2 " | 20/40 |
| 85 | Male. | 80. | Bad. | " " | " | " | 5 " | 20/100 |
| 86 | Male. | 64. | Good. | " " | " | " | 2 " | 20/70 |
| 87 | Male. | 54. | Good. | " L. E. | " | " | 2 " | 20/40 |
| 88 | Male. | 66. | Good. | " R. E. | " | " | 2 " | Not tested. |
| 89 | Male. | 60. | Good. | " L. E. | " | " | 2 " | " " |
| 90 | Male. | 57. | Good. | " R. E. | " | " | 2 " | 20/40 |
| 91 | Male. | 51. | Good. | " L. E. | " | " | 2 " | 20/100 |
| 92 | Female. | 47. | Good. | " " | " | " | 2 " | 20/100 |
| 93 | Male. | 55. | Good. | " R. E. | " | " | 2 " | 20/70 |
| 94 | Male. | 71. | Good. | " " | " | " | 2 " | 20/70 |
| 95 | Female. | 65. | Bad. | " " | Escape vitreous. | Irido-cyclitis. | 2 " | |
| 96 | Female. | 52. | Good. | " L. E. | Iridectomy. | Uncomplicated. | 3 " | 20/200 |
| 97 | Female. | 53. | Good. | " R. E. | " | " | 3 " | Not tested. |
| 98 | Female. | 77. | Good. | " L. E. | " | Iritis. | 4 " | 20/100 |
| 99 | Male. | 56. | Bad. | " R. E. | " | Uncomplicated. | 2 " | 20/30 |
| 100 | Male. | 58. | Good. | " L. E. | " | " | 2 " | Not tested. |
| 101 | Male. | 54. | Good. | " R. E. | " | " | 2 " | 20/40 |
| 102 | Male. | 46. | Good. | " L. E. | " | " | 2 " | 20/70 |
| 103 | Female. | 76. | Bad. | " R. E. | " | " | 2 " | Not tested. |
| 104 | Female. | 64. | Good. | " " | " | " | 3 " | 20/40 |
| 105 | Male. | 50. | Good. | " " | " | " | 2 " | 20/70 |
| 106 | Male. | 65. | Bad. | " L. E. | " | " | 2 " | 20/70 |
| 107 | Female. | 60. | Good. | " " | " | " | 2 " | 20/40 |
| 108 | Male. | 72. | Good. | " R. E. | " | " | 2 " | 20/40 |

| No. | Sex. | Age. | Health. | Cataract. | Operation. | Healing process. | Duration of treatment. | Primary Vision. |
|---|---|---|---|---|---|---|---|---|
| 109 | Female. | 61. | Good. | Hard. L. E. | Iridectomy. | Uncomplicated. | 3 weeks. | 20/70 |
| 110 | Male. | 79. | Good. | " " | " | " | 2 " | 20/100 |
| 111 | Male. | 55. | Good. | " R. E. | " | " | 2 " | 20/40 |
| 112 | Male. | 80. | Good. | " L. E. | " | " | 2 " | 20/70 |
| 113 | Female. | 56. | Good. | " " | " | " | 3 " | 20/100 |
| 114 | Female. | 63. | Good. | " " | " | " | 3 " | Not tested. |
| 115 | Male. | 72. | Good. | " " | " | " | 2 " | 20/100 |
| 116 | Male. | 81. | Good. | " " | " | " | 2 " | 20/70 |
| 117 | Female. | 66. | Good. | " R. E. | " | " | 2 " | 20/70 |
| 118 | Female. | 50. | Good. | " " | " | " | 2 " | 20/40 |
| 119 | Female. | 49. | Good. | " L. E. | " | " | 2 " | 20/100 |
| 120 | Female. | 48. | Good. | " R. E. | " | " | 3 " | 20/70 |
| 121 | Female. | 53. | Good. | " " | " | " | 2 " | 20/30 |
| 122 | Male. | 68. | Good. | " L. E. | " | " | 2 " | 20/40 |
| 123 | Male. | 64. | Good. | " " | " | " | 2 " | Not tested. |
| 124 | Female. | 62. | Good. | " " | " | " | 2 " | " " |
| 125 | Male. | 7. | Bad. | Soft. R E. | Needling. | " | 2 operations. | " " |
| 126 | Male. | 7. | Bad. | " L. E. | " | " | | " " |
| 127 | Male. | 81. | Bad. | Hard. L. E. | Iridectomy. | " | 3 weeks. | 20/40 |
| 128 | Male. | 81. | Bad. | " R. E. | " | Irido-cyclitis. | | Light perception. |
| 129 | Male. | 22. | Good. | Soft. R. E. | Simple. | Uncomplicated. | 2 weeks. | Not tested. |
| 130 | Male. | 30. | Good. | " " | " | " | 2 " | 20/200 |
| 131 | Male. | 44. | Good. | Hard. L. E. | Iridectomy. | " | 2 " | 20/100 |
| 132 | Male. | 4. | Good. | Soft. L. E. | Needling. | " | | Not tested. |
| 133 | Male. | 77. | Good. | Hard. R. E. | Combined. | " | 6 " | 20/100 |
| 134 | Male. | 77. | Good. | " L. E. | " | " | 2 " | Not tested. |
| 135 | Female. | 52. | Good. | " R. E. | " | " | 2 " | 20/200 |
| 136 | Male. | 65. | Good. | " " | " | " | 2 " | 20/70 |
| 137 | Female. | 57. | Good. | " L. E. | " | " | 2 " | 20/40 |
| 138 | Male. | 69. | Good. | " " | " | " | 2 " | 20/40 |
| 139 | Male. | 82. | Bad. | " " | " | Escape vitreous. | | No change but 3 weeks' vision. 20/70. |
| 140 | Male. | 34. | Good. | Hard. R. E. | Simple Ext. | Uncomplicated. | 2 weeks. | 20/40 |
| 141 | Female. | 51. | Good. | " " | " " | " | 2 " | 20/70 |
| 142 | Female. | 51. | Good. | " L. E. | " " | " | 2 " | 20/40 |
| 143 | Female. | 45. | Good. | " R. E. | " " | " | 2 " | 20/200 |
| 144 | Male. | 58. | Good. | " " | " " | " | 2 " | 20/100 |
| 145 | Male. | 58. | Good. | " L. E. | " " | " | 2 " | 20/70 |
| 146 | Male. | 61. | Good. | " " | " " | Escape vitreous. Iritis. | 4 " | 20/30, |
| 147 | Female. | 47. | Good. | " R. E. | " " | Uncomplicated. | 2 " | 20/40 |
| 148 | Female. | 60. | Good. | " " | " " | " | 2 " | Not tested. |
| 149 | Female. | 50. | Good. | " L. E. | " " | " | 2 " | " " |
| 150 | Male. | 60. | Good. | " " | " " | " | 2 " | 20/40 |
| 151 | Male. | 55. | Good. | " " | " " | " | 2 " | 20/70 |
| 152 | Male. | 44. | Good. | " " | " " | " | 2 " | 20/70 |
| 153 | Male. | 48. | Good. | " " | " " | " | 2 " | 20/40 |
| 154 | Male. | 51. | Good. | " R. E. | " " | " | 2 " | 20/70 |
| 155 | Male. | 62. | Good. | " " | " " | " | 2 " | 20/70 |
| 156 | Female. | 59. | Good. | " " | " " | " | 2 " | 20/100 |
| 157 | Female. | 71. | Good. | " L. E. | " " | " | 2 " | 20/70 |
| 158 | Female. | 73. | Good. | " R. E. | " " | " | 2 " | 20/40 |
| 159 | Male. | 47. | Good. | " " | " " | " | 2 " | 20/30 |
| 160 | Female. | 53. | Good. | " " | " " | " | 2 " | Not tested. |
| 161 | Female. | 62. | Good. | " " | " " | " | 2 " | 20/80 |
| 162 | Female. | 50. | Good. | " " | " " | Iritis. | 4 " | 20/100 |
| 163 | Female. | 58. | Good. | " " | " " | " | 5 " | 20/70 |
| 164 | Female. | 78. | Bad. | " L. E. | Iridectomy. | " | 7 " | Closed pupil. |
| 165 | Female. | 66. | Good. | " " | " | Uncomplicated. | 2 " | 20/70 |
| 166 | Female. | 66. | Good. | " R. E. | " | " | 2 " | 20/100 |
| 167 | Male. | 68. | Good. | " " | " | Ant. C., open | 17 days. | 20/200 |
| 168 | Male. | 28. | Good. | Soft. " | S. L. Extracture. | Uncomplicated. | 10 " | Not tested. |
| 169 | Female. | 47. | Good. | Hard. L. E. | Simple Ext. | " | 2 weeks. | 20/40 |
| 170 | Female. | 80. | Bad. | " R. E. | Iridectomy. | Iritis. | 5 " | 20/200 |
| 171 | Female. | 65. | Good. | " " | " | Uncomplicated. | 2 " | 20/70 |
| 172 | Male. | 88. | Good. | " L. E. | Simple Ext. | Prolapse iris. | 3 " | 20/100 |
| 173 | Female. | 70. | Bad. | " R. E. | " " | Iritis. | 4 " | 20/70 |
| 174 | Female. | 70. | Bad. | " L. E. | Iridectomy. | Uncomplicated. | 2 " | 20/70 |
| 175 | Male. | 44. | Good. | " R. E. | Simple Ext. | " | 3 " | 20/40 |
| 176 | Male. | 48. | Good. | " " | " " | Prolapse. | 5 " | 20/30 |
| 177 | Male. | 71. | Good. | " " | Iridectomy. | Uncomplicated. | 2 " | Not tested. |
| 178 | Female. | 70. | Good. | " " | " | " | 2 " | 20/100 |
| 179 | Female. | 61. | Good. | " L. E. | " | " | 2 " | 20/40 |
| 180 | Female. | 67. | Good. | " R. E. | " | Iritis. | 4 " | 20/40 |
| 181 | Female. | 66. | Good. | " L. E. | Simple Ext. | Big prolapse. | 5 " | 20/40 |
| 182 | Male. | 47. | Good. | " R. E. | " | " | 4 " | 20/30 |
| 183 | Female. | 58. | Good. | " " | Iridectomy. | Uncomplicated. | 2 " | 20/40 |
| 184 | Female. | 70. | Good. | " " | " | " | 2 " | Not tested. |
| 185 | Female. | 50. | Good. | " " | Simple Ext. | " | 2 " | 20/100 |
| 186 | Male. | 67. | Good. | " L. E. | Iridectomy. | " | 2 " | 20/20 |
| 187 | Female. | 77. | Bad. | " " | Simple Ext. | " | 2 " | 20/100 |
| 188 | Female. | 77. | Bad. | " R. E. | Iridectomy. | Iritis. | 4 " | 20/100 |

| No. | Sex. | Age. | Health. | Cataract. | Operation. | Healing process. | Duration of treatment. | Primary Vision. |
|---|---|---|---|---|---|---|---|---|
| 189 | Male. | 83. | Good | Hard. L. E. | Simple Ext. | Uncomplicated. | 2 " | Not tested. |
| 190 | Female. | 80. | Good. | " " | Iridectomy. | Closed pupil, but iridotomy gave. | | 20/200 |
| 191 | Female. | 70. | Good. | " R. E. | " | Uncomplicated. | 2 weeks. | 20/30 |
| 192 | Female. | 62. | Good. | " " | " | " | 2 " | 20/70 |
| 193 | Male. | 50. | Good. | " " | Simple Ext. | " | 2 " | 20/70 |
| 194 | Male. | 55. | Good. | " " | " " | " | 2 " | Not tested. |
| 195 | Male. | 60. | Good. | " " | " " | " | 2 " | 20/100 |
| 196 | Male. | 72. | Good. | " " | " " | " | 2 " | 20/70 |
| 197 | Male. | 72. | Good. | " L. E. | " " | " | 2 " | 20/70 |
| 198 | Female. | 70. | Good. | " " | Iridectomy. | " | 2 " | 20/20 |
| 199 | Female. | 70. | Good. | " R. E. | " | Slight iritis. | 3 " | 20/100 |
| 200 | Female. | 68. | Good. | " L. E. | Simple Ext. | Uncomplicated. | 2 " | 20/40 |
| 201 | Female. | 66. | Bad. | " R. E. | " " | Iritis. | 4 " | Not tested. |
| 202 | Female. | 68. | Delicate. | " " | Iridectomy. | Uncomplicated. | 2 " | " " |
| 203 | Female. | 65. | Good. | " " | " | " | 2 " | 20/40 |
| 204 | Female. | 65. | Good. | " L. E. | " | " | 2 " | Not tested. |
| 2 5 | Female. | 60. | Good. | " R. E. | " | " | 2 " | " " |
| 206 | Male. | 44. | Good. | " L. E. | " | " | 2 " | " " |
| 207 | Male. | 50. | Good. | " R. E. | " | " | 2 " | Cosmetic. |
| 208 | Female. | 55. | Good. | " " | " | " | 2 " | Not tested. |

# PAROTITIS FOLLOWING VISCERAL INFLAMMATION.—A REPORT OF TWO CASES.

(Service of Dr. Osler.)

By A. Duval Atkinson, M. D.

It is well known that parotitis is a complication in pyæmia and many infectious diseases. There seems also to be a relation between the parotid gland and the generative organs, and an apparent sympathy (as pointed out by Stephen Paget in 1886) between the parotid gland and the abdominal viscera. Cases illustrating it are, however, of sufficient rarity to warrant the report of the following histories.

*Case I.* Parotitis following a supposed gastric ulcer.—A female, aged 34, single, by occupation housemaid, was admitted December 16th, 1895, complaining of general weakness and vertigo. Her family history was good; her mother died of "dropsy"; there was no history of tuberculosis. She had always enjoyed good health until one year ago. She had had none of the diseases of childhood. The catamenia began at fourteen and were always regular until a year ago. She had not menstruated for four months. She had been sick during the past year, but not confined to bed. At the beginning of the illness her chief complaint was of a continual dull pain in the epigastrium and "cramps" in the legs, a condition which lasted for about one month, when the pain left the abdomen, but not the extremities. In them it persisted with the utmost severity, being of a shooting, darting character, coming on often in paroxysms lasting several minutes. At the height of these pains a feeling of "pins and needles" would be felt in the hands and fingers. During the six months previous to her admission her arms and hands had been swollen to some extent, also her eyelids, the latter especially in the early morning; her eyesight had been failing.

She took to bed December 9th, 1895 (eight days before entrance. Late in the afternoon of that day she began to feel weak and nervous, and had a gnawing sensation in the epigastric region. Nausea immediately followed, and she vomited a considerable quantity of bloody-looking material. Four hours later she again vomited a considerable quantity of material which the patient thought was pure blood. She remained in bed on account of her extreme weakness until she came to the hospital.

*Physical Examination.* Patient's skin and mucous membranes were pale; sordes on lips; tongue pale, moist, and somewhat cracked. Distinct pulsation in external jugulars; pulse 25 to the quarter, regular in force and rhythm, tension distinctly raised; vessel wall a little thickened.

The thorax was long; costal angle narrow; expansion only fair, but apparently equal. Respiration over front of chest was negative; clear on percussion. Over the back the breath sounds were quite clear.

*Heart.* Point of maximum cardiac impulse diffuse over fifth and sixth spaces, in and a little outside the nipple line; relative dullness was at the upper border of the third rib, extending to the nipple line and a little beyond the left sternal margin. At the point of maximum cardiac impulse the first sound was loud and booming, accompanied by a blowing systolic murmur which was heard as far out as the anterior axillary line. The second sound was accentuated. A systolic murmur was also heard in the aortic region, where the second sound was sharp and loud. Over the sternum the murmur was increased and the second sound was more booming. At the costal angle the murmur was very distinct and the second sound was greatly increased in intensity.

Hepatic flatness began at the sixth intercostal space and extended to the costal margin in the mammillary line; the border was indistinctly felt. Spleen not palpable. No œdema. Reflexes normal. Blood count showed 2,214,000 red corpuscles to the cubic millimetre; white corpuscles, 8000; hæmoglobin 30 per cent. The urine was pale yellow in color; specific gravity varied from 1010 to 1006; there was a decided trace of albumen. Microscopically granular casts were seen. There were no rigors.

During the night of Dec. 16th, 1895, the patient began to complain of pain, and there was some swelling in the region

of the left parotid gland. The next morning (two days after entrance) the following condition was noted. The patient presents great swelling of the left parotid gland. The swelling extends up above the zygoma, and behind far over the mastoid. Below there is a marked amount of infiltration in side of neck, extending to the angle of the mouth. The swelling lifts the lobe of the ear. It is rounded, tense, hot, and very painful. The tongue is a little swollen. Nothing exudes from Steno's duct when external pressure is made over the gland. The abdomen is negative. There is no general enlargement of the superficial glands of the body.

At 12 noon, although no fluctuation was obtained, the gland was incised. Numerous small foci of inflammation were discovered, from which exuded a little creamy pus. Cover-slips from these areas showed streptococci and a large bacillus; the latter was supposed to have come from the mouth. Cultures showed a pure growth of streptococcus, the bacillus not growing.

The following day, December 20th, the pain in the region of the neck had in a measure subsided; the swelling, however, remained about the same; there was marked œdema of left eyelid.

The patient did fairly well until the 24th, the swelling and œdema of eyelids remaining about the same. On that day she was extremely pale, pulse 100, dropping a beat occasionally. The swelling of the cheek was perhaps a trifle less; she breathed noisily; no infiltration in the lower neck. The patient sank rapidly and died. Unfortunately no autopsy was allowed. The diagnosis of parotitis, gastric ulcer, and chronic interstitial nephritis was made.

*Case II.* Cholecystitis (post typhoidal) complicated by double parotitis.—J. L., single, age 34, German, butcher by occupation, was admitted to Ward F, November 25, 1895, complaining of continual headache, pains in his muscles and joints. His family history was good; there was no history of tuberculosis. His only disease during childhood was scarlet fever, from which he made a complete recovery, with no sequelæ, and excepting an attack of rheumatism, which confined him to bed nine months in 1893, had always been a strong, able-bodied man. He gave no history of syphilis or gonorrhœal infection. Had been a moderate drinker. The history of his present illness was that about one week before his admission he began to have headache, chills and nausea, accompanied by vomiting. The diagnosis of typhoid fever was made, and the patient had a typically mild course of fever, which was treated by means of the ice-baths. His temperature reached normal on December 5th, ten days after entrance. The urine showed a distinct diazo reaction, and there was a trace of albumen. The spleen was easily palpable, and there were a few typical rose spots. The liver was never palpable. Blood negative for malarial organisms. No leucocytosis. His convalescence was uninterrupted, and he was discharged well, January 1, 1896.

The patient was readmitted November 30, 1896, eleven months afterwards, complaining of headache and general weakness, stating that he had been feeling badly for ten days. The chief symptoms seemed to have been headache, muscular and slight abdominal pain. Two days before entrance he had had a slight chill followed by fever and sweating. On entrance his temperature registered 102.4°, pulse 27 to the quarter minute, full and strong. The physical examination was negative save for a slight enlargement of the spleen and some rigidity of the right rectus muscle. The liver was not palpable and the hepatic flatness was not increased. The blood was entirely negative for malarial organisms, and there was no leucocytosis. The conjunctivæ were injected, but there was no jaundice. No bile was found in the urine. His temperature, which reached 103° on the evening of his entrance, quickly dropped to normal, and the man was discharged December 15th, quite well, with no definite conclusions being reached concerning the nature of his trouble.

He again applied for admission March 5, 1897, stating that for three days he had had chills, accompanied, he thought, by fever, headache and pains in his back and limbs. His bowels had been very costive for some time.

The physical examination was as follows: Well nourished, strong-looking man; face flushed; eyes bloodshot; lips a trifle œdematous; tongue had a slight brown coat. Pulse, 32 to the quarter minute, dicrotic; capillary circulation rather sluggish. Thorax symmetrical, expansion equal; an occasional sonorous râle was to be heard over chest and axillæ. Heart sounds clear. Spleen just palpable on deep inspiration. Hepatic flatness began at the sixth rib, extending one finger's breadth below the costal margin. The muscular resistance of the abdominal wall was such that it was utterly impossible to palpate it. In the mammillary line there were 13 cm. of hepatic flatness. (Pain was complained of whenever deep palpation was attempted in the hypocondriac region.) On the following day, March 6th, there was no essential change in his condition. The morning temperature registered 104.2°, and that of evening 103°. There was well-marked tenderness on pressure in the hypocondriac region, and pressure between the crest of the ilium and ribs on the right side caused pain. The most tender part appeared to be just at the region of the gall-bladder. The conjunctivæ were a little muddy, but not distinctly jaundiced. There was a leucocytosis amounting to 11.200 to the cubic mm. The urine was negative, but no test for bile was made. On March 9th the conjunctivæ were slightly yellow, and the urine reacted for bile. There was still great tenderness in the region of the gall-bladder. His temperature, which had been gradually falling, reached normal at 2 a. m., where it remained until the 12th, when it was again elevated. On that day both parotid glands were swollen, the right more than the left. They were hot and very tender to pressure. No fluctuation was obtained. On the 15th both glands were greatly swollen, the tissue of the face and neck was infiltrated, and eyelids œdematous. The skin over the parotid glands was red, the gland itself imparting a hard infiltrated sensation to the examining hand. Both papillæ at orifice of duct were swollen, and pus could be forced out. Although the patient was in poor condition, his temperature registering 102.8°, he insisted upon leaving the hospital, and was therefore discharged.

Cultures from the blood on agar-agar and bouillon proved negative. Diagnosis: Cholecystitis (post-typhoidal), com-

plicated by double parotitis. Later both parotids were incised, the bacteriological examination showing a pure growth of staphylococcus aureus. The patient is now quite well.

The cases in many ways correspond to some of those referred to by Stephen Paget in the London Lancet for 1886, and spoken of in more detail in the British Medical Journal in 1887. In his series parotitis followed injury and diseases of the peritoneum, generative organs, and abdominal viscera. Two followed a supposed gastric ulcer. Of the 101 cases cited, 10 were due to injury of the urinary tract; 18 to diseases of the alimentary tract; 23 to injury or disease of the abdominal wall and peritoneum, or to the pelvic cellular tissues, and 50 to temporary derangement of the generative tract. He states that parotitis after abdominal or pelvic injury or disease is not as a rule accompanied by signs of septicæmia or pyæmia. Of his 101 cases mention is only made in 15 of septic symptoms. 37 died; of these 3 were over eighty years of age; 3 had internal cancer; 2 had perforation of the bowel; and 2 had strangulated hernia; 7 had undergone severe surgical operation involving abdominal section; 13 had septicæmia or pyæmia; 1 had infantile syphilis; 1 had marasmus; and 1 had heart trouble. He adds that death was not due to parotitis *per se*, but to a primary lesion, and he is unable to state to what extent parotitis is a dangerous complication. Its period of incubation is unknown, but in his opinion it is from one to thirteen days. There is as a rule no marked disturbance to general health, no rigors, and no high fever. On the other hand symptoms may be more severe from the onset, and great disturbance in general health may be noted. Rigors were noted in only 4 cases. In regard to the termination of the parotitis, whether by resolution or by suppuration, the figures show that out of 73 cases which give information on the point, 45 suppurated and 33 were resolved, and out of 45 that suppurated 24 died; but out of the 33 that resolved without suppuration only one died (in all probability from cancer). In other words, he thinks that they did not die because the parotids went on to suppuration, but that the parotids suppurated because they were going to die. In cases of undoubted septicæmia or pyæmia the parotids always went on to suppuration.

The only autopsy reported by Paget is that of a woman dying from the effects of the removal of a sarcomatous growth of the mesentery, having parotitis as a complication. On section the parotid was found to be evenly and in every part infiltrated, not with pus, but with a reddish, slightly turbid fluid, causing it to look like a section of the spleen. There were no abscesses anywhere. Just in the proximal end of the duct where it left the gland lay two or three drops of healthy pus and a tiny calculus. The acini were separated, compressed, and breaking up, and here and there were seen ducts filled with the same small round cells as were infiltrated among the acini. No bacteriological examination was made. Mr. Paget cites a case reported by Rosenbach of parotitis following operation for strangulated hernia, in which staphylococcus aureus was obtained. He further states that this form of parotitis is in many ways a peculiar lesion, so far as being due to septicæmia. It was in 93 cases an isolated lesion, unaccompanied by any other lesion like itself, having no fixed period of incubation, and running no common course. Its invasion is not as a rule marked by rigors or great rise of temperature. It may subside and swell up and subside again. These facts make it impossible to say that this form of parotitis is due to any ordinary form of septicæmia. It is not, he thinks, due to inflammation following a parched and sore mouth, as the mouths of pyæmic or septicæmic patients are not, as a rule, more parched than those of other patients. Also, he does not think that it is merely due to inflammation of the lymphatic tissue which is in the gland substance. "Admitting that the general condition of the patient, especially in cases of septicæmia and pyæmia, is considered in the production of this form of parotitis, must we not take into consideration the reflex action of the nervous system, as the influence, direct and reflex, of the nervous system upon the salivary glands is shown in countless ways; viz. gastritis may be followed by salivation or arrest of salivary secretion. Parotitis may follow gastric ulcer, gastrotomy, etc. Even operations on the rectum and again diseases of the thoracic viscera cause inequality of the pupils, differing not only in size, but in their susceptibility to light. Thus, with regard to pyæmia after abdominal or pelvic lesions, we may admit that the general condition of the patient may help to cause it, without denying the local influence of the nervous system."

A. J. Cribb (Lancet, 1886) reports two cases; in one parotitis followed irritation of the genito-urinary tract, and in the other ovaritis occurred in connection with parotitis. And again, Harkin (Lancet, 1886) reports parotitis in a woman aged 43 as one of the first symptoms of three successive pregnancies, no suppuration being present. These cases seem to point undoubtedly to some latent sympathy between the parotid glands and the organs either covered by or closely adjacent to the peritoneum. It is, however, difficult for us, with our present bacteriological knowledge, to conceive of inflammation being established in organs far remote from the seat of irritation by reflex causes alone, without the presence of micro-organisms. An interesting case, and one bearing a close resemblance in some respects to those cited, is one reported by W. Legg in the Pathological Society Reports for 1869, in which parotitis was a complication in contracted kidney and atheroma in a lad aged 16, who was admitted to the University College Hospital for albuminuria. Nine days after admission he complained of pain on right side of face. The day after well-marked right parotitis was noted. The swelling continued for eight days, when the patient died suddenly. There was found to be no obstruction to Steno's duct; the gland tissue was pale grey in color, not at all reddened, rather harder than natural, and on section there flowed from the cut surface a large quantity of pale greyish white fluid, somewhat thin, showing under the microscope a large number of rounded cells, larger on the average than pus corpuscles, having rather granular contents, and single small bright nuclei. The gland was the seat of small abscesses varying in size from a pin head to a barley corn. Microscopically was seen a great increase in epithelial elements, the acini being filled with them. The arteries were atheromatous

and the kidneys contracted. No mention is made of lesions in other organs.

W. B. Morrow, in the Montreal Medical Journal of March, '96, has related the histories of three cases of parotitis following pelvic disease. And Herbert and Hawkins, in the British Medical Journal of April 10, 1897, report two cases of operation for perforation of gastric ulcer, in one of which there was a double parotitis three days after operation, the patient eventually making a complete recovery, the glands subsiding without incision being necessary.

# PALPATION OF THE FŒTAL HEART IMPULSE IN PREGNANCY.

By Douglas F. Duval, M. D., *Assistant Resident Gynecologist.*

It is not generally known that the impulse of the fœtal heart may under certain conditions be actually felt beating through the abdominal walls of the pregnant woman.

In this country but two cases have been observed, those of Dr. Kelly, which I now report. The first was in 1884 and the second in 1895. They represented the right bregmatic-iliac-anterior and left occipito-iliac-posterior presentations, the latter being observed in the eighth month of pregnancy, all previous cases having been during labor.

Of the other observers, Fischel, in 1881, was the first to publish a definite account describing accurately three cases in which this phenomenon occurred. These cases represented the left bregmatic-iliac-anterior, the right occipito-iliac-posterior and the left mento-iliac-anterior presentations. Valenta, however, in 1885, claimed priority of observation, stating that he had noted it in 1860 in a first face presentation, and had recorded it in his "Text-Book on Midwifery," and that since then he had repeatedly spoken of its importance as a diagnostic sign in anterior face presentations. Fleischman in 1885, stimulated by Fischel's communications, published an interesting case in which this phenomenon was observed in a right mento-iliac-anterior presentation.

The following is a brief account of the various cases:

*Case I.* Observed by Dr. Kelly, in Kensington, Philadelphia, in 1884. Multipara, of medium build, mother of four or five children, abdominal walls moderately thin. A right bregmatic-iliac-anterior presentation. Membranes ruptured, os half dilated, brow just engaging. The impulse of the fœtal heart was forcible and distinctly palpated over an area about 3 cm in diameter; to the right and about half way between the umbilicus and Poupart's ligament, separate beats were easily counted, 130. The child was born living after a protracted labor and manual rectification of position.

*Case II.* Observed by Dr. Kelly. Patient short brunette, well nourished, abdominal walls not thin, eighth month of her first pregnancy. A left occipito-iliac-posterior presentation. Heart sounds heard loud over an area 10x10 cm., and easily counted 140. On moderate pressure a rapid fluttering sensation was clearly distinguished over an area about 2.5 cm. in diameter. The separate beats could not be distinguished; a few days later, on examination, the heart impulse could not be felt. The patient has since passed through a normal confinement.

### Fischel's Cases.

*Case I.* Æt. 36, 1 para, well nourished, strong. Pains began on 30th at 9 p. m. Liquor amnii discharged on 31st at 12.15 a. m. At 7.45 a. m. os 6 cm. in diameter. Fœtus in left bregmatic-iliac-anterior presentation. Heart sounds to the left and below umbilicus. At 12.15 fœtal heart impulse palpated to left and beside umbilicus, synchronous with fœtal heart sounds, frequency 156–160. This phenomenon was observed for several hours. Change of presentation being impossible, craniotomy was performed.

*Case II.* Æt. 21. Well built, large, strong. Pains began at midnight. At 2 a. m. liquor amnii discharged. Entered hospital at 4 a. m. Cervix obliterated, back to the right, feet to the left above the umbilicus, chin 8 cm. above left os pubis, heart sounds above the symphysis. From this description very probably a right occipito-iliac-posterior presentation. The fœtal heart impulse was palpated just above the chin, easily demonstrable, frequency 156, maternal pulse 112. In the further course of labor, which was rapid and favorable, the impulse was palpated in the pauses between the pains, descending toward the symphysis and finally disappearing entirely, though the sounds continued to be heard. Examination of the child's heart after labor showed clearly that the sounds were of normal strength and clearness.

*Case III.* Æt. 30. 1 para, small, strongly built, moderately fat, abdominal walls thin. Pains began at 10 a. m. Entered hospital in the afternoon. External examination: Occiput above right os pubis, extremities to the left, heart sounds to the left of the umbilicus, loud and slow. The presentation in this case was *then* a left mento-iliac anterior. At 6.30 p. m. the heart impulse was clearly palpated 5 cm. to left of umbilicus. At 7.30 p. m. was 5 cm. to left of umbilicus, but lower. At 8 p. m. frequency ranged between 80 and 150; maternal pulse 66–72. At 11.30 p. m. heart impulse to left of umbilicus, but lower. Labor terminated at 12 m., fœtal heart sounds ceased two minutes before delivery, child stillborn.

### Fleischman's Case.

*Case I.* Æt. 35. Abdominal walls thin and flabby. Entered hospital at 11 p. m., three hours after discharge of liquor amnii. Occiput over left os pubis, back to the left, heart sounds clearest four fingers' breadth to right of midline, chin to right and forward, forehead to left and backward. *Evidently* a right mento-iliac-anterior presentation. On the following morning the fœtal heart impulse was palpated in the right hypogastrium, at the junction of the middle and lower thirds of a line drawn between the umbilicus and middle of Poupart's ligament. In frequency doubled that of the maternal. The sounds were loud and clear.

Fleischman says: "The conditions in this case for the observation of the phenomenon were most favorable, the abdominal walls were thin and flabby and the liquor amnii had previously discharged, thus permitting the uterine walls to clasp firmly the fœtal thorax."

The following is a summary of *all* the cases:

*Fischel*, 1881, three cases: Left bregmatic-iliac-anterior, right occipito-iliac-posterior, left mento-iliac-anterior.

*Valenta*, 1885, one case: First face presentation (R. m. i. ant.)

*Fleischman*, 1885, one case: Right mento-iliac-anterior.

*Kelly*, two cases: First in 1884, a right bregmatic iliac-anterior presentation; second in 1895, left occipito-iliac-posterior presentation.

From the above it will be seen that the observation has been made in face, brow and occipito-posterior presentations — two of each. One may therefore infer that these are the most favorable presentations for the observation of this phenomenon; especially is this the case in face and brow presentations, the fœtal thorax being arched forward and therefore in closer proximity to the maternal abdominal walls. In occipito-posterior presentations the fœtal curve is directed backward and consequently less favorable.

The liquor amnii also plays an important part, as shown by the fact that in all cases, with the exception of the second case of Dr. Kelly, the observation was made during labor. In this case one must naturally suppose that a small amount of liquor amnii was present. As for the maternal abdominal walls, they should be thin and flabby in order that there may be little hindrance to the transmission of the impulse of the fœtal heart.

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# SQUAMOUS EPITHELIOMA IN A DERMOID OF THE JAW.

By S. M. Cone, M. D., *Assistant in Surgical Pathology, The Johns Hopkins University.*

Few cases of epithelioma arising in dermoid cysts have been described. Tauffer, whose article on carcinoma arising in dermoids of the ovary is very complete, knows of none originating in dermoids elsewhere. In none of the dissertations on dermoids of the ovary with carcinoma in their walls do we find reference to like tumors in other regions of the body. I can find but three cases and they are not very fully described. That of Franke, on an epidermoid of the ball of the thumb with carcinoma originating in it, is most complete. Czerny in 1869 reported a case in the coccygeal region, the first to be noted anywhere, which is interesting moreover because of the expression of the opinion that the squamous epithelium developed from cylindrical epithelium such as is found in the intestinal tract, and the idea is expressed of the possibility of epithelium arising from connective tissue and lymph cells. Briddon reported a case before the New York Surgical Society and Dr. Thacher made the pathological report. This tumor was also from the coccygeal region. The sections which were kindly given me have some resemblance to the one I shall describe. The descriptions of those found in the ovaries are so much better described that it is best to reach our conclusions regarding origin and development through the gynecological literature.

Yamagiwa and Thumim have both reported cases this year. Thumim gives the literature on the subject up to date. Yamagiwa reports two cases, one of which he puts down as a glandular carcinoma developing from remains of a mammary gland in the dermoid. Thumim objects to including this among the dermoids with "carcinomatous degeneration" and rather thinks it to be part of a misplaced mammary gland forming a part of a teratoma of the ovary. If it is a true carcinoma it is the only one of its kind described; the remaining eight cases arising in the ovary and three elsewhere are all of the squamous cell variety.

All authors are careful to exclude the possibility of the growth of the epithelioma "per contiguitatem," both Tauffer and Thumim giving a list of doubtful cases. The analogous origin of carcinoma in atheromas and other cysts lined by epithelium is mentioned by Lubarsch in his review of the subject, and many others refer to the subject as something not long discovered. A very interesting point is alluded to by Yamagiwa when in writing of his first case he refers to its resemblance to alveolar sarcoma or endothelioma. Such cases have been reported, but are rare.

The case to be reported is that of Patrick D., age 42, blacksmith, who entered the surgical ward of the Johns Hopkins Hospital, June 20, 1894, with a tumor of the left lower jaw. Family history good; past history good.

*Present Illness.*—In September, 1893, the patient noticed a pea-sized growth under the horizontal ramus of his left lower jaw. It began to pain him in November and grew rapidly with incessant pain. He refers its quickened growth to a fall when he injured the jaw.

*Physical Examination.*—The tumor extends from 1 cm. in front of the angle to the junction of the middle and outer third of the horizontal ramus of the lower jaw. It extends to the hyoid bone and appears to be the size of a small orange. It is fixed firmly, is sharply circumscribed and has smooth, rounded borders. It is firm in consistency except at the most prominent portion, where slight fluctuation can be felt. The skin is œdematous and red. At one point there is a small opening from which serum exudes on pressure. Teeth are normal. Alveolar process is not involved.

On June 25th the patient was operated on by Dr. Halsted.

Tracheotomy was first performed, and the pharynx being tamponed the tumor and left lower jaw were excised. The patient's recovery from the operation was uninterruptedly good. He was discharged on July 13th. He returned September 6, 1894, and was treated for phthisis pulmonalis—tubercle bacilli being found in his sputum. He was discharged on September 14th unimproved and died at home of phthisis pulmonalis. No autopsy was performed.

*Description of the tumor by Dr. Bloodgood.*—The tumor is removed with an area of skin 8x6 cm. and a piece of the lower jaw 7 cm. long, including the angle of the jaw. This mass is surrounded by skin, periosteum and healthy muscle at every point except one, which is at the inner side of the jaw 3½ cm. from the angle where the tumor tissue is exposed. A second piece of the jaw including the two molar teeth and alveolar processes includes the remainder of the tumor, which is well circumscribed by muscle and mucous membrane; so that, putting the two pieces together, the entire mass is circumscribed. The point at which it is most superficial is beneath the myo-hyo-glossus muscle at its attachment to the alveolar process of bone which was removed.

The tumor has not invaded mucous membrane nor bone. On section from the skin to bone it consists of an encapsulated mass, the capsule being firmly adherent to periosteum on one hand and skin on the other. There are several points on the skin communicating with the cyst contents and through which the contents can be expressed. The capsule is 4–5 mm. in thickness. The inner surface is rough and granular. The fatty granular contents are easily removed; they resemble those of a dermoid cyst except at the outer third of the tumor near the symphysis of the jaw. Here the contents are firm in consistency, greyish in color, with pin-point dots of hemorrhage. In this tissue masses of the same consistency as that of the cyst can be found. The tumor presents the characteristics of a dermoid cyst.

On section of the mass within the jaw the submaxillary gland is found to be adherent to the capsule of the cyst. The contents of the cyst show fatty squamous epithelium and crystals of cholesterin.

*Microscopical Examination.*—Sections of the cyst wall with adjacent structures were made at many points. The cyst varies in thickness. The inner lining is of horny epithelium which is more or less loose and swollen and mixed with the cyst contents. The same cornified epithelium is found in whorls on the surface mixed with the cyst contents. These cells look like long flakes, some containing nuclei, others being free of them, which stain deeply with eosin and carbol fuchsin. Beneath this loosely arranged epithelium we see a denser layer and then the gradation of epithelium as in normal skin, only not so thick.

The stratum granulosum is much better marked in some places than in others. The stratum mucosum comprises the main mass of epidermis; the deeper cells of the malpighian layer are not pigmented. The cells appear swollen and œdematous. Some of the nuclei are vacuolated and irregular while others are fragmented. In the epidermis are a few irregular areas, about the size of the cells, which are granular and take the hæmatoxylon stain deeply—evidence of calcareous degeneration in the cyst wall. The cell borders are not nearly so well defined as in normal epidermis. The papillæ are fairly well marked, but there is an entire absence of sweat glands and hairs. A few sebaceous glands are to be seen in the corium, which is not well marked because of the invasion of its territory by profuse round cell infiltration about epithelial projections.

These epithelial downgrowths between the papillary stroma into the deepest parts of the cyst wall are made up of masses of cells such as are found in the stratum mucosum and enclose cells of the more superficial layers of epidermis. These cells of the outer epidermal layers are sometimes formed into whorls in the deepest ingrowths of the squamous epithelium, and form the "pearly bodies."

The epithelium of these downshoots has better staining nuclei than that on the surface. These inter-papillary growths seem to be kept in definite paths for the most part, but when the deepest portion of the cyst wall is reached one can see epithelial cells spread throughout the tissue, some being isolated without any demonstrable relation to the primary downgrowth. This sprouting of epithelium deeply and irregularly into the wall of the dermoid is seen throughout the entire tumor wall, but does not go any further, for it is always preceded by a zone of round cell infiltration made up of mononuclear cells. This zone is preceded by one of connective tissue of varying thickness which invariably intervenes between the epithelial cells and adjacent tissues and organs. There are papillary projections into the cyst of various lengths from 1 mm. to 2 cm. which all show a lining of epithelium already described, and have a supporting connective tissue basis. Between the stratum corneum and malpighian layer are to be seen hemorrhagic foci in some sections.

The round cell infiltration is intensely marked throughout the cyst wall. The papillary stroma and deep layers of the dermoid are full of mononuclear leucocytes which are aggregated in some places, resembling lymphoid nodules. These cells have also penetrated between the epithelial cells of the surface and ingrowths. The centres of the "pearly bodies" contain both mono- and polynuclear leucocytes and fragments of nuclei. There are typical tubercles in several sections which are most distinct in the sections containing muscle, including the sinuses alluded to above. No tubercle bacilli can be found in them, however.

The lining wall of the dermoid shows evidence of degeneration in areas; the epithelium is invaded by mono- and polymorpho-nuclear leucocytes. The nuclei stain poorly and are fragmented. The cells appear separated from one another and are swollen.

Sections including skin and dermoid wall made at different points have essentially the same appearance. The points in which the histology differs from the foregoing description are the giant cell formation between subcutaneous tissue and the fibrous limiting line of the dermoid and the openings in the skin alluded to in the macroscopic description. The giant cells are like the customary foreign body giant cells and are seen singly and in groups at the margin of the dermoid wall. They are especially numerous on the dermoid side of the dividing fibrous tissue. Where these are in

greatest number and collected in groups the fibrous separating line has been almost completely substituted by them and the accompanying mono- and polynuclear leucocytes. Here the definition between dermoid and skin is not so good as elsewhere.

The giant cells in the subcutaneous tissue are grouped about hair shafts; in the dermoid walls they enclose horny particles (stained deeply with carbol fuchsin), polynuclear leucocytes, fragmented nuclei and granules (stained deeply with hæmatoxylon and probably calcareous). Some have no contents and are vacuolated. Most of them contain large vesicular nuclei, grouped in the centre of the cell; in some the nuclei have a polar arrangement.

Beneath the epidermis of the skin there are masses of red blood corpuscles, polynuclear leucocytes and fragmented nuclei. Here no papillary arrangement of the skin exists and the epidermis is flattened and thinned. The epidermis, too, is infiltrated with leucocytes. Adjoining this area of hemorrhage and necrosis a discontinuity in the epithelial covering is detected. The edges of epidermis are turned in and are continuous with a sinus which can be traced deep into the subcutaneous tissue, but not so far as the fibrous demarcation between skin and dermoid. This sinus is lined by necrotic tissue containing blood and fragmented nuclei. In its depths the connective tissue of the part is denser, but there is no evidence of new formation of tissue. There is no epithelial lining. Vessels included between the dermoid walls and subcutaneous tissue are obliterated by endarteritis. Their walls are all thickened.

In one of the sections there is a variation from the usual structure of the dermoid wall. Instead of the interpapillary growths of epithelium dipping down at once into the depths of the wall, we see a network of epithelial rods one and two cells thick surrounded by small round cells. The epithelial lining is very thin at this point, being composed only of cornified epithelium. Beneath this interlacing network of cells we see the larger groups containing pearly bodies described in the other sections.

The submaxillary gland is included in several sections of the tumor and in none does the epithelioma invade the gland. The capsule of the submaxillary is greatly thickened and only at one point is there any suspicion of invasion. Here the round cell infiltration is most marked, the connective tissue formation not being evident. Into the round cells can be seen jutting epithelial sprouts, but they do not enter the interlobular connective tissue of the submaxillary. The changes in the submaxillary are due to pressure and infiltration of its connective tissue framework with small round cells. The connective tissue is thickened and some of the cells in the alveoli do not take the stain well. The cyst-wall next the submaxillary varies from 1 to 3 mm. in thickness and consists of epithelial masses and single cells included in the stroma, which is deeply infiltrated with small round cells. The epithelial cells are of the same kind as in the stratum mucosum, but better defined and with more regular nuclei.

The muscle next the tumor is densely infiltrated with small round cells and is atrophied. The nuclei of the muscle cells next to the dermoid wall are greatly increased in number and arranged in rows. The muscle substance stains but faintly and there is no striation in the first rows next to the fibrous line between tumor and muscle. It appears like a homogeneous mass containing rows and bunches of nuclei. There are no giant cells nor necrotic areas to be seen. A nerve is included in the section with muscle. It is surrounded by dense fibrous tissue. The epithelial cells crowd close up upon the epineurium, but do not penetrate it. The round cell infiltration and new formation of connective tissue are very prolific about the nerve.

The presence of tubercles in the cyst walls, the great and uniform round cell infiltration, the profusion of giant cells of both the foreign body and tuberculosis variety, and the uniform distribution of the epithelioma in the wall of the dermoid, are all striking points.

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# THE INFECTIOUSNESS OF CHRONIC URETHRITIS.

By E. R. Owings, M. D., *Assistant in Genito-Urinary Surgery, The Johns Hopkins Hospital Dispensary.*

The possibility of infection from old cases of gonorrhœa is an important and by no means infrequent problem, presenting itself not only to the gynæcologist and genito-urinary specialist, but also to the general practitioner.

Many cases of gonorrhœa extend over months or even years, often in spite of persistent and systematic treatment, and in response to the inquiries, "Could I infect another?" or "Is my condition such that I may safely marry?" the physician must often give evasive or unsatisfactory replies.

There is no fact better established than that a gonorrhœal urethritis is due to the entrance and development within the urethra of a specific organism, the gonococcus Neisser,

which is constantly present in the discharge of an acute gonorrhœa.

The gonococcus, first described by Neisser[1] in 1879, has been isolated; a pure culture made first by Bumm,[2] since by Wertheim,[3] Steinschneider[4] and other observers; and a gonorrhœal urethritis produced by the introduction of pure culture within healthy urethra proving conclusively its etiological relation.

The infectiousness (*i. e.* power to produce gonorrhœa) therefore of an urethral inflammation depends upon the presence of the gonococcus; and upon the demonstration of the presence of this organism rests the determination of the infectiousness of an urethral inflammation.

The gonococcus is a diplococcus, ½ to 1 micromillimeter in diameter, not round, but of biscuit or coffee-bean shape, with flattened or concave surfaces contignous, found within the leucocyte, around, never within the nuclei, and as determined by Roux,[5] if a preparation containing gonococci after being stained with aniline stain, be placed in Gram's solution, then decolorized by alcohol, the stain is not fixed by Gram's method, and the gonococci may be differentiated from other organisms found within the urethra, in that they are alone decolorized.

In 1887, Lustgarten and Mannaberg[6] in a series of investigations on the healthy urethra found among other organisms a coccus which they declare cannot be distinguished from the gonococcus Neisser by its morphology or staining reaction.

Petit and Wasserman,[7] on the contrary, in a large number of examinations (over 1000) of the normal urethra, have never found the organism described by Lustgarten, and in a number of cases of chronic urethritis were unable to demonstrate its presence.

Steinschneider[8] recognized beside the gonococcus four diplococci in the urethra, two of which were decolorized by Gram's method as follows:

| | No. | Organ. decolor. Gram. | Gonococcus. |
|---|---|---|---|
| Urethra healthy, never infected by gonococcus, | 13 | 1 | 0 |
| Urethra healthy, no gonorrhœa for years, | 3 | 0 | 0 |
| Chronic gonorrhœa, | 15 | 2 | 11 |
| Acute " (untreated), | 33 | 1 | 33 |
| " " (under treatment), | 22 | 0 | 22 |
| | 86 | 4 | 56 |

In 86 cases there was present in four a diplococcus decolorized by Gram's method, or about 4½ per cent., making Roux's test certain in about 95½ per cent. of all cases. He believes, however, that Roux's test, together with the characteristic grouping of the gonococcus within the pus cell around the nuclei, gives a definite result.

M. von Zeissl[18] has in the secretion of an urethritis due to chemical or medicinal irritants, found a diplococcus within the pus cell, which is decolorized by Gram's method; whether this is readily differentiated by grouping from the gonococcus he does not state.

Wendt[9] believes "Roux's color test never fails to gives correct interpretation."

Allen,[17] who worked conjointly with Wendt, believes "Roux's test final."

Carpenter[19] says: "Peculiar characteristics of the gonococcus almost positively diagnostic when confirmed by Roux's test practically leaves no room for doubt."

Heiman[20] says: "Diplococci found in normal urethra can be positively differentiated by Gram's stain."

Koplik[21] says: "In skilled and tutored hands a mistake of identity is not possible."

Finger[11] says: "There is no doubt that in addition to gonococci other organisms are present in blenorrhagic pus, but these never give rise to the slightest diagnostic doubt. The number of foreign organisms is so slight, and they are found to such a large extent outside the pus cells, their shape and grouping are so different, that the differences in staining are unnecessary to make a positive differential diagnosis."

Lustgarten[12], 1893, says: "If in a chronic torpid urethritis with a scanty whitish or greyish discharge, diplococci with all the characteristics of the gonococcus are found; it does not prove that the affection is contagious, especially if these diplococci are found in comparatively small number and are accompanied by a variety of organisms. As far as personal experience goes I believe that many of these cases are not contagious and that the wives of such men remain healthy and prolific."

In the absence of confirmatory proof by cultivation, which is not always practicable owing to the difficulty attending the growth of the gonococcus, ordinary media being unsuitable for its growth, and as in chronic urethritis where its demonstration is especially desirable the presence of other organisms by their rapid growth makes it impossible to secure discrete colonies of the organism, we are compelled in these cases to rely solely upon its morphology and Roux's test for identification. By these methods the gonococcus may be differentiated from micro-organisms found within the urethra, with the possible exception of the diplococcus described by Lustgarten, which at most is present in but a small per cent. of cases. The presence, in the secretion of an urethral inflammation, of a diplococcus with the characteristics and color reaction of the gonococcus is sufficient clinical though not medico-legal evidence of the infectiousness of same.

The examinations recorded in the paper were confined to chronic cases entirely. In many there was no discharge visible at the meatus, and in no case was there more than the "goutte militaire." Their duration varied from three months to four years. The majority were under active treatment at the Johns Hopkins Hospital Dispensary, and so far as was possible examinations were made on date of first visit and subsequently at short intervals. Unfortunately, as in all dispensaries, many failed to return after one or two visits, making it impossible in these instances to secure repeated examinations. The examinations recorded are of the tripperfäden, as in many of the cases this was the only material available.

The method pursued was as follows: The urine, and where possible the morning urine, was secured, one or two tripperfäden were drawn up with a pipette and after being gently teazed-out on a slide, were dried over a flame and then washed

carefully in warm water to dissolve out as far as possible salts of urine which were precipitated by evaporation. Specimens thus obtained were stained two minutes in aniline gentian violet solution, prepared by adding 1 cc. filtered concentrated solution to 15 cc. water.

In decolorizing the slides were placed in Gram's solution for 2 minutes, then in alcohol until no more blue color was extracted, generally from two to three minutes. A watery solution of Bismarck brown was used as counter stain.

In 15 instances no micro-organisms were found; in these cases the fäden consisted almost entirely of epithelial cells with here and there a few leucocytes.

In the 35 remaining micro-organisms were found; these were identical with varieties already described by Lustgarten and other observers, and consisted of 4 varieties of cocci and 2 bacilli, as follows:

I. Small coccus in zoogleæ.

II. Small coccus in chains.

III. Diplococcus about size of gonococcus.

IV. Large coccus, 1½ to 2 mm. in diameter, generally in pairs.

V. Long slender bacillus (smegma bacillus?).

VI. Short thick bacillus with rounded ends (suggestive of colon bacillus).

These were not all present in every specimen examined, nor did they occur in equal frequency. I, small coccus in zoogleæ, and IV, large coccus, 1½ to 2 mm. in diameter, were almost constantly present, while the smegma bacillus? was noted in comparatively few instances, and VI, bacillus, short, with rounded ends, in one case only.

In five specimens examined, in addition to one or more of the varieties already described, diplococci were seen lying within leucocyte, morphologically identical with the gonococcus and decolorized by Gram's method.

These were the only organisms seen within the leucocytes. Others were either free in the intercellular space, lying on epithelial cells or on, not within, leucocytes, as could be determined by careful focusing.

In 5 cases then we have an organism which could be positively identified as the gonococcus Neisser.

Three of these 5 cases were of from 4 to 6 months' duration, 1 was of 9 months' and 1 of 2 years' duration, or, tabulating cases as regards age of disease —

| Number of cases. | Duration. | Gonococci. | Other micro-organisms. | Negative as to organisms. |
|---|---|---|---|---|
| 12 | Under 6 months. | 3 | 8 | 4 |
| 8 | 6 to 9 " | 1 | 5 | 3 |
| 7 | 1 year. | 0 | 5 | 2 |
| 9 | 2 " | 1 | 6 | 3 |
| 8 | 3 " | 0 | 6 | 2 |
| 6 | over 3 years | 0 | 5 | 1 |
| 50 | | 5 | 35 | 15 |

Out of 38 cases of more than 6 months' duration, in 2 instances only were gonococci demonstrated, and in 30 of more than a year's duration, in one case only could they be found.

Goll[13] in 1891 made repeated examinations of cases of chronic urethritis with the following results:

| Duration. | No. of cases. | Gonococci. | No Gonococci. | Per cent. |
|---|---|---|---|---|
| 6 months | 55 | 8 | 47 | 14 |
| 1 year | 83 | 12 | 71 | 14 |
| 2 " | 135 | 7 | 128 | 5 |
| 3 " | 80 | 2 | 78 | 25 |
| Over 3 years | 59 | 0 | 59 | 0 |
| | 412 | 29 | 383 | |

Petit and Wasserman' in their examination of chronic urethritis found various organisms, and believe them to be accidental or saprophytic, and that they vary with the individual.

Janet[72] has studied cases of chronic urethritis with respect to various organisms present, and divides them into three classes:

I. Gonococci present alone.

II. Gonococci and other micro-organisms.

III. No gonococci, but varied micro-organisms.

He believes that these organisms invade the urethra, probably in coitus, and the catarrhal mucous membrane presenting a favorable medium, they are able to keep up the inflammatory process after the disappearance of the gonococcus, producing an obstinate pseudo-gonorrhœa.

Hasse,[14] 1893, "in 625 cases of chronic urethritis found gonococci unattended by other organisms in 37 cases. In acute gonorrhœa he found gonococci alone and their presence constant; with their disappearance and an increase in the epithelial cells in the discharge, other bacteria, both bacilli and cocci, appeared in large numbers."

In the small percentage of cases where the gonococcus is definitely determined to be present, we can without hesitation declare their infectiousness. Unfortunately, however, in the large majority we are unable to say with certainty that we have to do with a non-infectious malady, that is, in those where the gonococci are uniformly absent or present in so few numbers as to elude detection. For while the detection of the gonococcus renders infectiousness certain, a failure to detect it does not guarantee its absence, as often after many negative examinations the gonococci may suddenly appear in considerable numbers.

In one of the above recorded cases, that of 2 years' duration, the examination of which extended over several months, after 3 or 4 negative examinations, following an injection of 3 to 5 per cent. of $AgNO_3$, with Tommasoli syringe, the gonococci could readily be detected.

In these cases then where there is still doubt, the test first proposed and still insisted upon by Neisser[18] is an invaluable adjunct, viz. the injection within the urethra of a solution of argent. nitrat. or hydrarg. chlor. corrosive, sufficiently strong to produce an inflammation with free purulent discharge, when, if the gonococci have been present but have escaped detection, they will be found in the discharge in sufficient number to make their identification positive, and at the same time with the desquamation of the epithelium the accidental micro-organisms are removed to a large extent.

Finger[11] "only permits marital intercourse after frequent examinations of the secretion or tripperfäden show an absence of pus cells; and the discharge following the application of Neisser's test contains no gonococci."

Morel Lavalleé[15] says:

I. "The gonococcus may rest latent for months or even years in the urethra.

II. It is impossible to permit marriage in a man that has the slightest discharge until by Neisser's test it has been proved free of organisms."

It is reasonably certain that the gonococci suffer enfeeblement during their stay in the urethra. This attenuation is due probably to alteration of medium, viz. the urethral mucous membrane, consequent upon growth of organism. In this way we can readily account for their presence without resultant inflammatory reaction. A localized chronic urethritis does not, however, confer any immunity from fresh infection. Finger[11] has produced in four instances an acute gonorrhœa on patients with chronic urethritis by inoculation with pure culture of gonococcus.

He believes that the gonococcus is attenuated by long residence in the urethra, and that women infected by their husbands who suffer from chronic gonorrhœa have a urethritis which runs a chronic course.

Jamain[16] believes "that the gonococcus becomes attenuated, but that in contact with a healthy mucous membrane in another individual it is rejuvenated and produces an acute gonorrhœa."

The secretion in cases of chronic urethritis being small as compared to an acute one, so small in many cases that it appears in the urine only as tripperfäden, it follows that after being washed off by the urine, it requires some time for regeneration. (Hence arises the importance of examining the first urine passed after an interval of several hours, preferably the morning urine, for if the patient has urinated within an hour or two the urine may be free from shreds.) So that a single act of coitus with an individual suffering from chronic urethritis and with a secretion bearing gonococci does not always produce infection.

Since we can only demonstrate the presence of the gonococcus in a small percentage of cases of chronic urethritis (in 37 of 625 reported by Hasse, or 6 per cent.; in 21 of 357 reported by Goll, of a duration of a year or more, or 6 per cent.; in 2 of 38, of same duration, reported in this paper, or 5½ per cent.), and since when present they are, as compared to an acute gonorrhœa, few in number, often only demonstrated after frequent, careful and repeated examination, and since they are from attenuation probably less virulent, we must conclude that:

I. In many cases of chronic urethritis we are unable to demonstrate the presence of the gonococcus; these cases are probably non-infectious.

II. In any case the possibility of infection as compared to an acute urethritis is small.

III. An urethritis due to an attenuated organism, and consequently modified in intensity, may be contracted from a chronic urethritis. Conversely:

IV. Several negative examinations of the secretion from a chronic urethritis do not prove its non-infectiousness.

V. The infectiousness or non-infectiousness of a chronic urethritis can only be determined by frequent and careful examinations of the secretion, and if these prove negative, by the non-appearance of the gonococcus after the application of Neisser's test.

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# THE IMPORTANCE OF EMPLOYING PURE SALTS IN THE PREPARATION OF THE SCHOTT BATH.

EDITOR OF JOHNS HOPKINS HOSPITAL BULLETIN.

*Dear Sir:* I am lately in receipt of the following letter from a physician in the West. I submit to you the letter and my reply in full for publication, if you see fit, as I trust by so doing a similar mistake may be averted.

I am very truly,

C. N. B. CAMAC.

[COMMUNICATION.]

DR. C. N. B. CAMAC, Johns Hopkins Hospital, Baltimore, Md.

*Dear Doctor:*—The instructions contained in your article in the May issue of the Johns Hopkins Hospital BULLETIN on the Schott treatment of heart disease have recently been followed by me in a case of hypertrophy with organic lesions.

We nearly had a disastrous result owing to an evident error in those instructions.

Bath V calls for sodium bicarb. 1 lb., HCl 1 lb. Bath VI increases the HCl to 2 lbs., but leaves the sodium bicarb. still at 1 lb., thereby producing an excess of 1 lb. of HCl which is not provided for.

I gave the journal to the hospital druggist with instructions to prepare each bath in order in accordance with the directions, paying no thought to chemical results. When bath VI was given the patient was attended by only one nurse, while usually two or three had been present. She noticed the chlorine gas rising from the tub, but supposed it was all right and put the patient in. He had no sooner stepped in than he was nearly suffocated and was quickly assisted out without harm.

The nurse seemed seriously prostrated for a time with a very severe bronchitis and laryngitis and the hospital attendants had a lively time to relieve her.

I relate these circumstances in order to call your attention to a mistake that must have been made in the article in question.

The patient has been rather worse during the course of baths, but that may be due to the progress of the disease, which is serious. As it takes more than one swallow to make a summer, I cannot pass an opinion on the method of treatment. Very truly yours,

---

BALTIMORE, MD., *Sept.* 4, 1897.

*Dear Doctor:*—I am indebted to you for your communication in reference to the Schott treatment.

We have had no experience similar to yours in using bath No. VI, which I may say is seldom called for. Chemically, the results which you had seem an impossibility, no matter how excessive the amount of hydrochloric acid may be. Suppose, for example, we take a formula expressing an excess of hydrochloric acid as follows:

$$NaHCO_3 + 5HCl = NaCl + H_2O + CO_2 + 4HCl.$$

The other two salts, sodium-chloride and calcium-chloride, are already in solution, and being bases in combination with the acid hydrochloric, remain chemically unchanged.

The reason the carbonic acid is given off when bicarbonate of soda and hydrochloric acid are combined is because the hydrochloric acid has a greater affinity for the sodium than has the carbonic acid; the latter is, therefore, displaced, appearing as carbonic acid gas and the salt sodium chloride resulting.

The following would be the formula for this reaction:

$$NaHOCO_2 + HCl = NaCl + H_2O + CO_2.$$

I can only account for your unhappy accident by supposing that one of two mistakes was made:

1st. Your druggist may have given you sulphuric or nitric acid instead of hydrochloric, both of which acids have a greater affinity for the bases sodium and calcium than has hydrochloric acid, and which would have combined with these to form sulphates or nitrates, free HCl being formed. (Formula see below, Experiment No. 3.)

2d. The calcium chloride (which is the more likely to have occurred) may have been adulterated with chloride of lime, or indeed chloride of lime may have been given to you instead of calcium chloride. This hypochlorite of calcium being the ordinary bleaching powder and much cheaper than the pure salt calcium chloride, forms a ready salt for adulteration, which in the presence of only a small amount of hydrochloric acid yields chlorine gas and would be, I can readily understand, not only dangerous to a heart case but even seriously injurious to a healthy individual. (Formulæ see below, Experiments 4 and 5.)

Actuated by your letter I made the following experiments:

1st. Bath No. 6 with the amounts of constituents as directed in my pamphlet from which you quote. Result: Abundance of carbonic acid gas. No unpleasant effects.

2d. The same amount of constituents with excess of hydrochloric acid. Result: Same as experiment No. 1. (Nos. 1 and 2 performed in bath tub.)

3d. Small amount of sodium chloride, calcium chloride, and bicarbonate of soda and sulphuric acid (experiment performed in beaker glass). Result: Stifling odor; no fumes visible. This "stifling" odor was probably due to the HCl forming.

4th. Salts, sodium chloride, calcium hypochlorite (bleaching powder), bicarbonate of soda, *dilute* hydrochloric acid. Result: Chlorine given off; suffocating; beaker had to be placed under the hood.

5th. Sodium chloride, calcium hypochlorite bicarb. soda and sulphuric acid. Result: More pronounced than in experiment No. IV.

Allow me to thank you for your communication, which I consider of sufficient importance to publish in order that a like so serious mistake may not again be made.

Very truly yours,

C. N. B. CAMAC.

Formulæ:

Experiment No. 1. Same as formula given at beginning of letter.

Experiment No. 2. Same as formula given at beginning of letter.

Experiment No. 3. $2NaCl + CaCl_2 + 2NaHCO_3 + 3H_2SO_4 = 2Na_2SO_4 + CaSO_4 + 2H_2O + 2CO_2 + 4HCl$.

Experiment No. 4. $Ca(ClO)_2 + 4HCl = CaCl_2 + 2H_2O + 2Cl_2$.

Experiment No. 5. $Ca(ClO)_2 + CaCl_2 + 2H_2SO_4 = 2CaSO_4 + 2H_2O + 2Cl_2$.

*Note.*—I have not included in these last two formulæ—the NaCl, as it would have no effect upon the reaction—neither is the $NaHCO_3$ included, as $CO_2$ would be evolved as already noted.

# PROCEEDINGS OF SOCIETIES.

## THE JOHNS HOPKINS HOSPITAL MEDICAL SOCIETY.

*Meeting of Monday, May* 17, 1897.

Dr. Flexner in the Chair.

**Demonstration of a Case. Probable Brain Tumor.**—Dr. Thomas.

The patient whom I wish to present to the Society will be brought from the ward in a few moments. She is a young, unmarried woman of twenty-six, with a good family history, except that one brother is believed to have tuberculosis. She has been a fairly strong girl, and has had no serious illness of any kind. Her occupation is that of a sewing woman, and she has been learning stenography and type-writing.

About a year ago she had an attack of unconsciousness; this began with a painful contraction of the right hand, which lasted for a minute or two, and passed up the arm, when she became unconscious. She was found about half an hour afterwards by her brother, who shook her and brought her to herself. After this attack she was comparatively well, and went to her employment the next day as usual. In August of last year she was under a great deal of nervous strain on account of the death of a relative. About this time she had several nervous attacks, which she calls "nervous chills," and which seem to have been hysterical. On November 8, 1896, while sitting with her arm resting on the table, she became conscious of a sensation of numbness in the elbow of her right arm. This arm and the leg on the same side became suddenly powerless, and she has been told that her face was drawn to the left, but of this she was not conscious. With the onset of this paralysis she became absolutely unable to speak. She was put to bed, and showed so much nervousness that the attending physician, a very competent man, made the diagnosis of hysteria, and it was impressed upon her that she could, if she would, get up and walk and talk. The description which she gives of the loss of speech is remarkably distinct and clear. She says that she understood everything that was said to her, and remembers much of it. She knew every one who came into the room, but was absolutely unable to say a word. She thinks that she knew what she wanted to say, but had forgotten how to say it. She tried to write with the left hand, but could not form the letters and had forgotten how to spell the words. Upon making the attempt to read, after she had been sick about four days, she was unable to make anything of it, and three weeks afterwards she could not read the paper easily. After a week of complete speechlessness, during which every one around her had endeavored to make her talk, she was able to repeat the first four words of a text of scripture which had been said to her over and over again. By being taught day by day, her speech gradually improved; the first words that she said voluntarily were "go out." These she said to her sister, who had been sitting with her constantly for a good many days. She knew all the time just what she wanted to say, but it was only after a good deal of silent practice, and several attempts, that she was able to utter the two words. Her speech improved slowly, but steadily, until she regained the speech which she now has, which shows no defect.

The first of last December she had another attack, and another on the twelfth of February, and still another on the 26th of April. These attacks have all been of the same character, beginning with a painful contraction of the fingers of the right hand; this passes up the arm, and she describes an intense pain in her head. At this time she says that she loses all knowledge that the arm belongs to herself, although she still experiences pain in it. This is a remarkable statement. In these three attacks, consciousness seems not to have been lost.

As the patient enters the room, you will notice that she walks with a slight limp, and that the right hand is held in the manner so characteristic of hemiplegia. I have been unable to find the slightest disturbance of her speech. She now speaks voluntarily, without difficulty, writes long and short hand, understands everything that is said to her, and reads with ease. The ophthalmoscopic examination showed that the fundus was normal, although there is a slight degree of hyperæmia. She has a congenital squint and a slight nystagmus, but other than this, no abnormality of the cranial nerves. Her chief disability is in regard to her right arm, which, as you see, is very tremulous and nearly useless. She is unable to oppose the thumb to the little finger, and the movements of the finger are very weak. The movements at the wrist are better retained, and those at the elbow and shoulder better still. The movement of outward rotation of the arm is very weak indeed, whereas the inward rotation is comparatively strong. The deep reflexes are markedly exaggerated, percussion on any of the tendons causing active muscular contraction, and there is a well-marked wrist clonus. Objectively, there is not much muscular weakness of the right leg. Sensation is everywhere perfectly normal. I have tested particularly for any abnormality of the muscular sense of the right arm, and found that she appreciates even very slight movements of any of the joints. There is no muscular atrophy. The examination of the chest shows no abnormality, and we have been unable to discover anything that indicates a preceding specific infection (syphilitic).

I have been much interested in this patient, and it is surely an unusual case. That a young woman of her age should have been affected with a hemiplegia associated with a temporary loss of speech, and followed by recurring attacks simulating closely Jacksonian epilepsy, is very remarkable. The diagnosis of *hysteria* seems at first sight the most probable one. Organic vascular lesions are very rare at her age, except when they are associated with syphilis. In this case there is nothing in the previous history or in the present condition that suggests such a cause. The patient was at the onset undoubtedly very hysterical, and you will remember that she gave the history of preceding hysterical attacks, all of which speak for the diagnosis of hysteria; but the condition in which you have seen the patient suggests an organic paralysis more than an hysterical one. Mann and other observers have studied the distribution of the paralysis due to organic brain disease, and have determined that there are certain movements which are most apt to be paralysed. The movements which are most often paralysed are those of the thumb, and next in order of importance is the outward rotation of the arm. In the case before you, these are just the muscles which are paralysed. The excessive increase of the deep reflexes, which is present in this case, is also unusual in association with hysterical paralysis, so I think we are justified in stating that the character of the paralysis is that due to an organic brain lesion, rather than to hysteria. The character of the convulsive attacks also points to an organic lesion, as true Jacksonian attacks are, as far as my knowledge goes, extremely rare in hysteria. Although I am not very positive about it, still I believe that we have a definite disease of the brain in this case, and I am inclined to think that this disease is a slow-growing tumor. I have been led to this belief from an experience which we have lately had. Some of you will remember that I reported to this Society last fall the clinical history of a case upon which we had advised operation. The case was that of a man who, for six years, had had recurring attacks of Jacksonian epilepsy, beginning in his right foot, and which had later involved the right arm and face, and in whom there had developed paralysis of the leg, and of the arm. There were none of the general symptoms of brain tumor, and the operation revealed nothing abnormal; but the microscopical examination of the brain showed a most interesting new growth of the motor region, about which I hope Dr. Flexner will have something to say. The case which I have presented to you to-night, although not quite similar, will suggest this case strongly, and we fear is of a like nature.

*Note.*—While in the Hospital, in the early part of June, the patient had another attack. She was in the dining-room, talking with some friends, when the fingers of her right hand became stiff and painful. This extended up the arm, the hand and arm drew up, her head was drawn to the right side, and there was intense pain in her head. She then lost consciousness. Those who were about her say that her eyes were turned to the right and that her right leg was stiffened out, and that she fell to the floor. When she became conscious, in about five minutes, she could not talk for a few moments, and felt weak and badly, but was not hysterical.

**Demonstration of Specimens.**—By Dr. Cullen.

Several weeks ago at a meeting of this Society, Dr. Kelly spoke at length on the operative treatment of myomata and pointed out the ease with which these growths could be removed. Since that time I have operated upon two patients where the conditions present rendered the enucleation very difficult. Both of these cases present so many clinical points of interest that we may profitably discuss them for a few moments.

Case 1. *Umbilical hernia; multinodular myomatous uterus; large ovarian abscess communicating with the small intestine; hysterectomy.*

R. L., æt. 40. Admitted to Dr. Kelly's service March 23, 1897. Complaint, abdominal tumor, pains in the lower right abdomen and leg. She had been married 20 years, but gave no history of pregnancy. Menses began at 12 years, and were regular until August 15, 1896, when they ceased for 4 months, since which time they reappeared. Flow moderate, at times clotted; occasionally it is painful.

Family history negative.

Previous history unimportant.

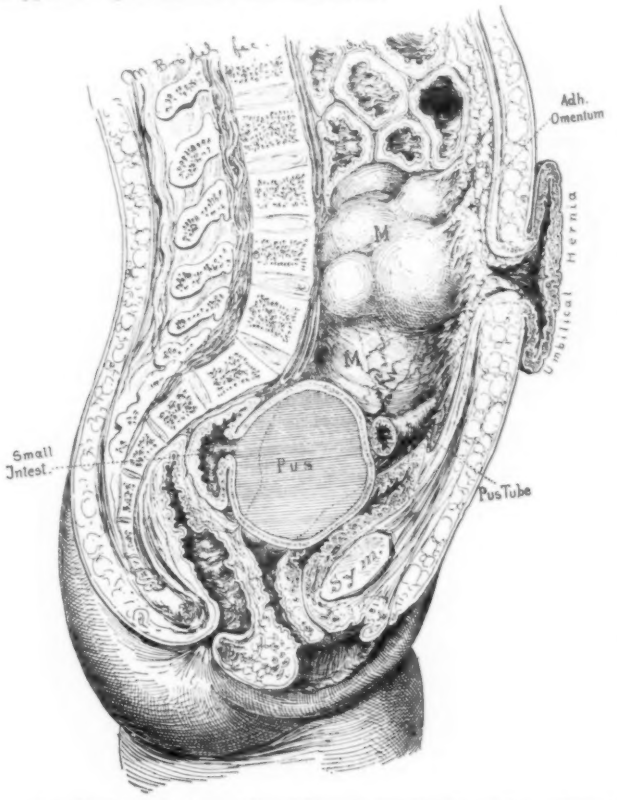
*Present condition.* Ten years ago she noticed a tumor about the size of an egg in the right side of the pelvis. This has steadily increased in size and has been almost constantly associated with a gnawing pain over its most prominent part. The pain has been so severe that she has at times been confined to bed, on one occasion for 3 months. The last attack was 3 months ago. Locomotion very difficult on account of pain in the legs. These are at times swollen and pit on pressure. No chills. No fever. The patient is well nourished, has a good appetite, bowels constipated. For the last two years she has had night sweats regularly.

The abdomen is much distended and presents an irregular lobulated appearance. At the umbilicus is a hernial sac fully 9 cm. in diameter. The skin over this can be drawn out for a distance of 6 cm., while the hernial ring whose margins are very sharply defined is 2 cm. in diameter. The following are the abdominal measurements: Distance from symphysis to umbilicus 14 cm.; from umbilicus to xyphoid 29 cm.; circumference at most prominent part of tumor 126 cm.; midway between umbilicus and xyphoid process 96 cm. Examination occasioned little pain.

*Operation March* 24, 1897. On account of the irregular hernial protrusion the abdominal incision was commenced at a point midway between the xyphoid cartilage and the umbilicus and continued downward to within a short distance of the pubes, the hernial sac being encircled and removed. At the umbilicus the omentum which was firmly adherent was ligated and then freed. Presenting at the incision were several subperitoneal myomata; to these the omentum was also firmly adherent. After loosening up these adhesions, the nodular myomatous uterus, 28x21 cm., was delivered. (See the accompanying figure.)

Occupying the posterior part of the pelvic cavity was an elastic tumor 17 cm. in diameter; this looked like an ovarian cyst and was intimately adherent to two loops of small intestine. On attempting to shell off the outer layers of the cyst

leaving them attached to the intestines, the cyst ruptured and was found to contain about 900 cc. of greyish fœtid pus. A glass trocar was introduced and the pus evacuated. The uterus was then removed in the usual way from left to right, but the left tube and ovary were left *in situ*. After bringing the cervical stump together the ovarian abscess was freed and the vessels at its pedicle controlled by silk ligatures. It was necessary, however, to leave a small part of the sac attached to the intestines, and on careful examination an opening 1 cm. in diameter was found between the intestine and the abscess sac. The margins of the intestinal opening were almost as dense as cartilage and at the same time very friable. After a good deal of dissection it was possible to turn the edges in and the opening was closed by fine silk sutures. This now was supported by a second and a third row.




A longitudinal section of the abdomen, showing from above downward the large multinodular myomatous uterus, to the upper and anterior surface of which the omentum is adherent, an umbilical hernia to whose ring the omentum has become adherent, a pus tube and an unusually large ovarian abscess which communicates with a loop of small intestine. The abscess was more on the right side of the body, but has been drawn on the same level to bring it out more clearly.

During the entire operation, which lasted 5 hours, the patient did not lose 3 oz. of blood. The abdomen was thoroughly cleansed with two litres of salt solution, the pelvic peritoneum drawn over the cervical stump and the abdomen closed without drainage.

On the eighth day the temperature rose to 100.8° and about the 20th day reached 101°. At that time there was considerable pain in the left iliac fossa and an indefinite thickening could be made out, but from this time on she rapidly recovered and was discharged May 4th feeling comparatively well.

From this case we may learn that where there is an umbilical hernia or adhesions are suspected it is well to begin the incision at a point above this; the finger can then be introduced into the abdomen to act as a guide. The presence of the ovarian abscess is very readily explained. There has evidently been an ovarian cyst. With the increase in size of the myoma the cyst has been firmly pressed against the intestines, adhesions have formed, and as continuous pressure promotes absorption, the walls have gradually atrophied until an opening has formed between the two. Attention may also be drawn to the fact that no drainage was employed.

CASE 2. *Large myomatous uterus extending out laterally between folds of broad ligament; complete hysterectomy necessary as no cervix was left; danger of injuring the ureters.*

M. F., æt. 40, admitted to Dr. Kelly's service March 29, 1897. Complaint, an abdominal tumor. Menstrual history somewhat indefinite, but the periods were regular until two years ago, since which time the patient has had a continuous but not excessive bloody discharge.

*Family History.* Mother's family showed a decided tuberculous tendency.

*Present Condition.* She first noticed abdominal enlargement during the summer of 1896. It has steadily increased since then and showed more advancement on the left than right side. During the last four years she has had on an average one profuse uterine hemorrhage each year; the last was one week before admission and continued three days. For one year there has been marked but not constant pain in the lower abdomen. Micturition frequent. No history of chills or fever.

*Abdominal Examination.* The abdomen is the size of a full term pregnancy, the greatest prominence is to the left of the umbilicus. Just below the umbilicus in the mid-line is a hard flattened area 8 cm. broad, to the right of which is a second nodule. From the character and consistence of the nodules one instantly suspects myomata.

*Measurements.* Distance from symphysis pubes to umbilicus 24 cm.; from umbilicus to xyphoid process 20 cm.; from right ant. sup. spine to umbilicus 25 cm.; from left ant. sup. spine to umbilicus 24.5 cm., girth at umbilicus 88 cm., greatest girth which is 8 cm. below the umbilicus is 91 cm.

On vaginal examination the cervix was felt as a half-moon-shaped slit directly behind the pubes, while the whole upper part of the pelvis was filled with a hard globular mass, forming a part of that occupying the abdomen.

*Operation* March 31, 1897. Hysteromyomectomy. The abdominal incision extended from a point 4 cm. above the umbilicus almost to the pubes. The myoma was delivered without difficulty, but found firmly fixed in the pelvis. Upward it reached a point midway between the umbilicus and xyphoid cartilage, was lobulated and laterally stretched out under the broad ligaments. The right round ligament was tied and cut, the vessels of the right tube and ovary were controlled and the appendages on this side were left *in situ*. On the left side the

tube and ovary were found lying on the upper surface of the tumor and could not be saved. After ligating and cutting the left round ligament the folds of the broad ligament were separated, exposing an artery 2 mm. in diameter lying on the surface of the tumor—this was probably the ovarian artery; it was tied off and the bladder peritoneum freed from the tumor. The myoma was then rolled upward and to the right, but on the left side the uterine vessels as such could not be isolated; they were, however, controlled by passing stout sutures at their usual site.

It was now my intention to amputate at the cervix, but as this was entirely involved by the tumor the vault of the vagina was opened into, its upper portion being removed. The right uterine vessels were caught by the forceps and the tumor was freed. In both broad ligaments were many dilated lymph spaces. After controlling the large vessels with silk and checking all oozing along the vaginal cut surface with catgut the vaginal mucosa was turned down into the vagina and the raw surfaces were brought together, thus shutting off the pelvic cavity. The bladder peritoneum was then drawn backward over the stump and united with that of Douglas' sac. Considerable anxiety was felt as to the safety of the ureters, as it was necessary on account of the vaginal vault being so widely opened to control the uterine vessels further out than usual. On the left side a rounded cord was seen included in the ligature, but on unraveling this it was found to be a fold of peritoneum. After washing out the pelvis with two litres of salt solution the abdominal cavity was closed. The patient made a perfect recovery and was discharged May 3, 1897.

In this case the chief anxiety was centred around the ureters. We were loath to close the abdomen without further examination as to their safety, but the patient's condition did not warrant any delay. Strict orders were given to have all the urine measured to determine if sufficient were secreted. The amount obtained satisfied us that both kidneys were doing their normal amount of work. Had a ureter been tied the abdomen would have been again opened and the ureter anastomosed into the bladder.

## NOTES ON NEW BOOKS.

Archives of Clinical Skiagraphy. Sydney Rowland, B. A. Camb., Editor. Volume I, Parts I–IV. 1896–7. (*The Rebman Publishing Company, Limited, London.*)

A publication whose object is "to put on record in permanent form some of the most striking applications of the 'New Photography to the Needs of Medicine and Surgery,' is being edited by Mr. Sydney Rowland, the special commissioner appointed by the British Medical Journal to make inquiry into the above-mentioned applications. The Archives of Clinical Skiagraphy published its first number in May, 1896. Since then three more numbers have appeared at irregular intervals. Each of them contains a series of six collotype plates, taken from some excellent X-ray negatives, to which a brief clinical and explanatory note is appended. Most of the plates are of simple skeletal lesions of the extremities, illustrative of fractures, malformations and neoplasms.

There are few reproductions of the more difficult exposures through the pelvis or chest, and but cursory mention of attempts to recognize lesions other than osseous ones, such as intra-thoracic aneurism, changes in the cardiac area, pulmonary affections, renal calculi and the like. There is an excellent skiagraph of tubercular arthritis of the hip in No. 3 and of congenital dislocation of the hip in No. 4, evidently in children.

In the last number (April, 1897) the scope of the publication has been enlarged somewhat, and reproductions of subjects other than purely clinical ones are presented, such as of zoological specimens, and reference is made to the possibility of taking moving shadow pictures for cinematographic purposes.

The life of such a publication, if devoted purely to clinical subjects, seems to come to a natural termination when its mission of calling attention to the great usefulness of the X-rays for the diagnosis of many pathological conditions has been fulfilled.

To-day an X-ray apparatus has become an almost necessary adjunct to the hospital or private armamentarium, and skiagraphs are as much to be expected in a clinical report as ordinary photographs, and will occupy an equally important place in the forthcoming text-books on fractures, orthopædics, etc.

It seems, therefore, that the value of such a periodical would be enhanced if it aimed, as do some of the better photographic journals, towards the perfection of the ways and means of bettering the art of skiagraphy rather than towards the mere reproduction of its quite familiar results.

The Archives are very handsomely published by the Rebman Publishing Company. The reproductions are good. Such type, paper and broad margins would be welcomed in many better known and more generally useful medical magazines. H. W. C.

Injuries and Diseases of the Ear, being Reprints of Papers on Otology. By Macleod Yearsley, F. R. C. S., Fellow of the British Laryngological, Rhinological and Otological Association, etc. (1897, *London: The Rebman Publishing Co., Limited*, 11 *Adams St., Strand.*)

This little book is an interesting collection of monographs, and is not a systematic treatise on diseases of the ear. All of the articles are interesting and suggestive. We would especially commend "Foreign bodies in the ear and their treatment," "What not to do in diseases of the ear," and "On the care of the ear in children." The chapter on "Aural Reflexes" is too brief to be satisfactory. It is to be hoped that the author will at some future time expand it into a book.

Inebriety. Its Source, Prevention and Cure. By C. F. Palmer. (*New York: F. H. Revell Co.*, 1897.)

This short tract or sermon is not in any way a scientific discussion of this subject, and so lacks all special value for a physician. It is only suitable for that body of the laity who have a small amount of scientific knowledge. The point on which the author lays most stress is that inebriety is due to a neuro-psychopathic constitution, and that consequently it is a result of mental deformity rather than a moral infraction, and he believes that almost all inebriety may be traced back to a mentally or physically diseased ancestry. But his remarks might be applied with almost as much fitness to any other form of mental deformity as inebriety.

Medical and Surgical Report of the Presbyterian Hospital in the City of New York. Vol. II, January, 1897.

This report compares very favorably with Volume I, and with more supervision in the editing would be still better. Many of the papers published in this volume have appeared before in the New York medical journals, which detracts from their vivid interest. For those who have not read the journals there are good papers on typhoid fever, tuberculosis, and a variety of other topics both surgical and medical, reported at greater or lesser length. The description of the operating pavilion as an aid in construction for other hospitals is most valuable.

Hysteria and Certain Allied Conditions. Their Nature and Treatment with Special Reference to the Application of the Rest Cure, Massage, Electro-therapy, Hypnotism, etc. By George J. Preston, M. D., Professor of the Diseases of the Nervous System, College of Physicians and Surgeons, Baltimore, etc. 8vo, pp. 298. (*P. Blackiston, Son & Co., Philadelphia*, 1897.)

Dr. Preston modestly prefaces his book with an explanatory apology. Two reasons, he says, may perhaps be deemed of sufficient weight to warrant its appearance; first the great importance of hysteria, and secondly the lack of a recent book in English on the subject. The book is intended for the American general practitioner. Its "object is to present the symptomatology and differential diagnosis of hysteria in as concise a manner as possible, and to indicate the various therapeutic measures that have been found useful in the treatment of the disorder."

The author first gives a short sketch of the history of hysteria, in which special attention is given to the epidemics of hysteria so common in the Middle Ages and occasionally seen since then. An interesting account is given of the hysterical "orgies" enacted at the religious revivals of Kentucky and Tennessee in the early part of this century, and of the camp-meeting "trances" of the Southern negro.

The historical account is followed by a chapter on the "Nature of Hysteria." The etiology is considered in some detail. Sex, age, race, climate, heredity, diathesis, education and environment, and "reflex irritation" are discussed. In regard to "race," the author, who has had considerable experience with hysteria in the negro, thinks that the disorder is more frequent in that race to-day than it was during the slavery period. Indeed, it is at present by no means uncommon. Special stress is put upon the part that environment plays in the etiology of hysteria. The part played by "reflex irritation" is considered undetermined. It is rare that an abnormal condition of the organs of generation gives rise to the disease, though a morbid train of associated ideas often makes the hysterical woman refer her troubles to these parts.

The consideration of the etiology of the disease is followed by a brief review of the many theories that have been held as to its nature. The author concludes that hysteria is an affection of the higher brain centres, perhaps an actual though temporary loss of protoplasm. In bringing together his reason for this conclusion Dr. Preston shows an acquaintance with the more recent work on the fine anatomy of the cerebral cortex and an admirable hesitancy in making deductions from the suggestive results of the histologists.

There follows a chapter on "Symptomatology." Hysteria is considered as a single disease, though most protean in nature. The symptoms of the disease are divided into the following categories: 1. Disturbances of sensation: anaesthesia, paraesthesia, hyperaesthesia, affecting both the general sensibility and also the special senses. 2. Disturbances of motion: paralysis, contracture, tremor, convulsive seizures. 3. Vaso-motor, visceral, and nutritive disturbances. 4. Mental symptoms. 5. Miscellaneous symptoms.

The disturbances of sensation are treated with the fulness of detail which the subject warrants. Special attention is given to "hysterogenesis." The author feels convinced from cases of his own that the hysterogenic zones, first described by Charcot, have a real existence and are not the result of suggestion.

A good description is given of the various disturbances of the motor-system. The author draws an interesting comparison between the manifestations of hysteria in this country and those in France. "I have often been struck," he says, "with the similarity between the cases of hysteria in negroes, who, of course, have never been in any possible manner under the influence of suggestion, and the so-called 'show cases' at the Salpêtrière."

Under "mental symptoms" are considered the general mental state of the hysterical patient,* hysterical insanity, lethargy, narcolepsy, catalepsy, ecstasy, somnambulism, and vigil ambulism. Somnambulism, while not necessarily hysterical in nature, is considered to be very closely allied to hysteria on the one hand and to hypnotism on the other.

The visceral disturbances include contracture of the œsophagus, vomiting, hematemesis, hysterical anorexia, intestinal disturbances; affections of the genito-urinary apparatus; disturbances of the respiration and of the voice. Under cardiac and vaso-motor symptoms are considered tachycardia, flushing of the face and upper part of the body, autographism and cutaneous affections. Nutritional disturbances include muscular atrophy and hysterical fever. The latter, the author concludes, is a real though rare condition.

A third of the book is given up to a detailed consideration of the diagnosis and treatment of hysteria. There has been an evident and successful effort to make this clear, practical and helpful. Under differential diagnosis emphasis is put upon the fact that though hysteria is manifold in nature it is almost always characterized by certain stigmata, as for instance anaesthesia, which as a rule may be clearly distinguished from similar disturbances due to organic disease. "The central idea in the treatment of hysteria may be expressed in the word 'suggestion.'" The physician must have the confidence of his patient. In the general treatment of the disease the main reliance is to be placed upon a careful regulation of the diet, the meals, rest, exercise, occupation, and habits. Drugs are useful mainly because the patient is apt to have faith in medicine. The treatment of special symptoms likewise depends chiefly on suggestion. In case of severe attacks pressure on the hysterogenic zones, ice suppositories, apomorphia, chloroform, at times hypnotism, may help to terminate the attack.

Electricity, which has proved so valuable in the treatment of hysteria, owes its main effects to the power of suggestion. On the other hand, water as a therapeutic agent has a direct marked beneficial physiological effect in addition to its suggestive use. For the routine treatment of hysteria the alternate warm and cold douche is warmly recommended. Massage is chiefly applicable to those cases of hysteria, often complicated with neurasthenia, in which the patient cannot or will not take out-door exercise. The Weir Mitchell Rest Cure is considered in some detail. Hypnotism, of which the author gives a very interesting account, is considered very valuable in some cases, though on the whole it has proved disappointing as a therapeutic agent. Its great value is "that it has taught us how to make our treatment of the hysterical subject suggestive." Surgical interference is rarely necessary or of value. The author deplores the frequency with which ovariotomy has been done in this country merely for the relief of hysteria.

The book as a whole is admirably fitted for the purpose for which it was designed. The author makes no attempt at an original treatment of hysteria. He has drawn extensively from the literature on the subject, giving references to the more important articles. Yet he is far from being a mere compiler. He views the subject throughout from a modest yet independent standpoint, based on an experience with hysterical patients rendered the more valuable by an evident deep personal interest in the subject. The style is direct, clear, and interesting, though at times rough. The book is illustrated by diagrams taken from Charcot and Gilles de la Tourette, and by pictures from the drawings of Richer. It is well printed and well bound. It should prove not only most valuable to the general practitioner, but also of interest to the specialist in nervous diseases.

C. R. B.

* "As has been aptly put, the hysterical patient says 'I cannot,' it looks like 'I will not,' but it really is 'I cannot will.'"

# THE JOHNS HOPKINS MEDICAL SCHOOL. SESSION 1897-1898.

## FACULTY.

DANIEL C. GILMAN, LL. D., President.
WILLIAM H. WELCH, M. D., LL. D., Dean and Professor of Pathology.
IRA REMSEN, M. D., Ph. D., LL. D., Professor of Chemistry.
WILLIAM OSLER, M. D., LL. D., F. R. C. P., Professor of the Principles and Practice of Medicine.
HENRY M. HURD, M. D., LL. D., Professor of Psychiatry.
WILLIAM S. HALSTED, M. D., Professor of Surgery.
HOWARD A. KELLY, M. D., Professor of Gynecology and Obstetrics.
FRANKLIN P. MALL, M. D., Professor of Anatomy.
JOHN J. ABEL, M. D., Professor of Pharmacology.
WILLIAM H. HOWELL, Ph. D., M. D., Professor of Physiology.
WILLIAM K. BROOKS, Ph. D., LL. D., Professor of Comparative Anatomy and Zoölogy.
JOHN S. BILLINGS, M. D., LL. D., Lecturer on the History and Literature of Medicine.
CHARLES WARDELL STILES, Ph. D., M. S., Lecturer on Medical Zoology.
WILLIAM D. BOOKER, M. D., Clinical Professor of Diseases of Children.
JOHN N. MACKENZIE, M. D., Clinical Professor of Laryngology and Rhinology.
SAMUEL THEOBALD, M. D., Clinical Professor of Ophthalmology and Otology.
HENRY M. THOMAS, M. D., Clinical Professor of Diseases of the Nervous System.
SIMON FLEXNER, M. D., Associate Professor of Pathology.
J. WHITRIDGE WILLIAMS, M. D., Associate Professor of Obstetrics.
LEWELLYS F. BARKER, M. B., Associate Professor of Anatomy.
WILLIAM S. THAYER, M. D., Associate Professor of Medicine.
JOHN M. T. FINNEY, M. D., Associate Professor of Surgery.
GEORGE P. DREYER, Ph. D., Associate in Physiology.
WILLIAM W. RUSSELL, M. D., Associate in Gynecology.
HENRY J. BERKLEY, M. D., Associate in Neuro-Pathology.
J. WILLIAMS LORD, M. D., Associate in Dermatology and Instructor in Anatomy.
T. CASPAR GILCHRIST, M. R. C. S., Associate in Dermatology.
ROBERT L. RANDOLPH, M. D., Associate in Ophthalmology and Otology.
THOMAS B. ALDRICH, Ph. D., Associate in Physiological Chemistry.
THOMAS B. FUTCHER, M. B., Associate in Medicine.
JOSEPH C. BLOODGOOD, M. D., Instructor in Surgery.
THOMAS S. CULLEN, M. B., Instructor in Gynecology.
FRANK R. SMITH, M. D., Instructor in Medicine.
GEORGE W. DOBBIN, M. D., Assistant in Obstetrics.
WALTER JONES, Ph. D., Assistant in Physiological Chemistry.
ADOLPH G. HOEN, M. D., Instructor in Photo-Micrography.
SYDNEY M. CONE, M. D., Assistant in Surgical Pathology.
LOUIS E. LIVINGOOD, M. D., Assistant in Pathology.
ROSS G. HARRISON, Ph. D., Instructor in Anatomy.
HENRY BARTON JACOBS, M. D., Instructor in Medicine.
CHARLES R. BARDEEN, M. D., Assistant in Anatomy.

## GENERAL STATEMENT.

The Medical Department of the Johns Hopkins University was opened for the instruction of students October, 1893. This School of Medicine is an integral and coördinate part of the Johns Hopkins University, and it also derives great advantages from its close affiliation with the Johns Hopkins Hospital.

The required period of study for the degree of Doctor of Medicine is four years. The academic year begins on the first of October and ends the middle of June, with short recesses at Christmas and Easter.

The course of instruction is planned for the professional education of those who have received a liberal education, as indicated by a collegiate degree in arts or science, including a reading knowledge of French and German and adequate training in those branches of science, such as physics, chemistry and biology, which underlie the medical sciences. Men and women are admitted upon the same terms.

In the methods of instruction especial emphasis is laid upon practical work in the Laboratories and in the Dispensary and Wards of the Hospital. While the aim of the School is primarily to train practitioners of medicine and surgery, it is recognized that the medical art should rest upon a suitable preliminary education and upon thorough training in the medical sciences. The first two years of the course are devoted mainly to practical work, combined with demonstrations, recitations and, when deemed necessary, lectures, in the Laboratories of Anatomy, Physiology, Physiological Chemistry, Pharmacology and Toxicology, Pathology and Bacteriology. During the last two years the student is given abundant opportunity for the personal study of cases of disease, his time being spent largely in the Hospital Wards and Dispensary and in the Clinical Laboratories. Especially advantageous for thorough clinical training are the arrangements by which the students, divided into groups, engage in practical work in the Dispensary, and throughout the fourth year serve as clinical clerks and surgical dressers in the wards of the Hospital.

## REQUIREMENTS FOR ADMISSION.

As candidates for the degree of Doctor of Medicine the school receives:

1. Those who have satisfactorily completed the Chemical-Biological course which leads to the A. B. degree in this university.

2. Graduates of approved colleges or scientific schools who can furnish evidence: (*a*) That they have acquaintance with Latin and a good reading knowledge of French and German; (*b*) That they have such knowledge of physics, chemistry, and biology as is imparted by the regular minor courses given in these subjects in this university.

The phrase "a minor course," as here employed, means a course that requires a year for its completion. In physics, four class-room exercises and three hours a week in the laboratory are required; in chemistry and biology, four class-room exercises and five hours a week in the laboratory in each subject.

3. Those who give evidence by examination that they possess the general education implied by a degree in arts or in science from an approved college or scientific school, and the knowledge of French, German, Latin, physics, chemistry, and biology above indicated.

Applicants for admission will receive blanks to be filled out relating to their previous courses of study.

They are required to furnish certificates from officers of the colleges or scientific schools where they have studied, as to the courses pursued in physics, chemistry, and biology. If such certificates are satisfactory, no examination in these subjects will be required from those who possess a degree in arts or science from an approved college or scientific school.

Candidates who have not received a degree in arts or in science from an approved college or scientific school, will be required (1) to pass, at the beginning of the session in October, the matriculation examination for admission to the collegiate department of the Johns Hopkins University, (2) then to pass examinations equivalent to those taken by students completing the Chemical-Biological course which leads to the A. B. degree in this University, and (3) to furnish satisfactory certificates that they have had the requisite laboratory training as specified above. It is expected that only in very rare instances will applicants who do not possess a degree in arts or science be able to meet these requirements for admission.

Hearers and special workers, not candidates for a degree, will be received at the discretion of the Faculty.

### ADMISSION TO ADVANCED STANDING.

Applicants for admission to advanced standing must furnish evidence (1) that the foregoing terms of admission as regards preliminary training have been fulfilled, (2) that courses equivalent in kind and amount to those given here, preceding that year of the course for admission to which application is made, have been satisfactorily completed, and (3) must pass examinations at the beginning of the session in October in all the subjects that have been already pursued by the class to which admission is sought. Certificates of standing elsewhere cannot be accepted in place of these examinations.

## SPECIAL COURSES FOR GRADUATES IN MEDICINE.

Since the opening of the Johns Hopkins Hospital in 1889, courses of instruction have been offered to graduates in medicine. The attendance upon these courses has steadily increased with each succeeding year and indicates gratifying appreciation of the special advantages here afforded. With the completed organization of the Medical School, it was found necessary to give the courses intended especially for physicians at a later period of the academic year than that hitherto selected. It is, however, believed that the period now chosen for this purpose is more convenient for the majority of those desiring to take the courses than the former one.

The special courses of instruction for graduates in medicine are now given annually during the months of May and June. During April there is a preliminary course in Normal Histology.

These courses are in Pathology, Bacteriology, Clinical Microscopy, General Medicine, Surgery, Gynecology, Dermatology, Diseases of Children, Diseases of the Nervous System, Genito-Urinary Diseases, Laryngology and Rhinology, and Ophthalmology and Otology. The instruction is intended to meet the requirements of practitioners of medicine, and is almost wholly of a practical character. It includes laboratory courses, demonstrations, beside teaching, and clinical instruction in the wards, dispensary, amphitheatre, and operating rooms of the Hospital.

These courses are open to those who have taken a medical degree and who give evidence satisfactory to the several instructors that they are prepared to profit by the opportunities here offered. The number of students who can be accommodated in some of the practical courses is necessarily limited. For these the places are assigned according to the date of application.

The Annual Announcement and Catalogue will be sent upon application. Inquiries should be addressed to the

REGISTRAR OF THE JOHNS HOPKINS MEDICAL SCHOOL, BALTIMORE.

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